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To the Graduate Council:

I am submitting herewith a dissertation written by Robert Eric Heidel entitled "The Operationalization and Validation of Isomorphism in Supervision." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Counselor Education.

Robert Kronick, Major Professor

We have read this dissertation and recommend its acceptance:

Patrick Dunn, Gary Skolits, Russell Zaretzki

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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**The Operationalization and Validation of Isomorphism in Supervision**

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Robert Eric Heidel  
May 2012

## **Dedication**

This dissertation is dedicated to my parents, Bobby and Karen Heidel. My parents gave me an environment where I could thrive and make mistakes. And trust me, I made many mistakes. However, my parents never gave up on me and they believed in me even when I did not believe in myself. They have sacrificed so much for my happiness and have never let me down, not once. I am the first person on either side of my family to ever receive a college degree, much less a PhD, and it is because my parents made it possible. The overwhelming majority of my success up to this point in my life can be directly attributed to everything they have done for me. My mother taught me how to love. My father taught me how to dream. I love you Mom and Dad, thank you for my life and thank you for loving me. Your baby is going to be a doctor!

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## Abstract

This dissertation study is focused on operationalizing and validating the construct of isomorphism in supervision. Liddle and Saba (1983) defined isomorphism as the “recursive replication of processes and content between counseling and supervision. The construct has not been validated in the literature (Bernard & Goodyear, 2004), occurs in supervision at an unconscious level (Williams, 1997), is not understood by supervisees (Raichelson, Herron, Primavera, & Ramirez, 1997), and yet plays an integral and foundational role in how supervision is facilitated and structured (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997).

In order to operationalize and validate the construct, a self-report survey was created to measure for levels of isomorphism using a survey creation methodology proposed by Colton and Covert (2007) and Lounsbury, Gibson, and Saudargas (2005). The eight steps of the aforementioned methodology were conducted by the researcher and this dissertation constitutes the methods and results of steps seven and eight, the pilot study and validation study.

The results of the study found that the Isomorphism Scale has an acceptable level of internal consistency reliability (Cronbach’s  $\alpha = .893$ ) with 30 items. An exploratory factor analysis found nine underlying factors accounting for 68.65% of the variance. There was strong convergent validity evidence for the composite and factor scores of the Isomorphism Scale when compared to the subscales of the SWAI-Supervisor (correlations ranged between .119 and .353), the SIQ-Supervisor (correlations ranged between .134 and .195), and the SSI-Supervisor (correlations ranged between .121 and .358). There was also incremental validity evidence found with the composite score of the Isomorphism Scale accounting for a significant amount of variance in the “Attractive” subscale of the SSI-Supervisor,  $\Delta [\text{delta}] R^2 = .016$ ,  $F(1, 269) = 6.87$ ,  $p = .009$ , and the “Interpersonally Sensitive” subscale of the SSI-Supervisor,  $\Delta [\text{delta}] R^2 = .026$ ,  $F(1, 267) = 10.34$ ,  $p = .001$ . There was no concurrent validity evidence found in the analysis. The results show that the Isomorphism Scale is a reliable and valid instrument that validates the core facets of isomorphism posited by White and Russell (1997).

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## **Chapter 1**

### **Introduction to the Study**

#### **Introduction**

This chapter will introduce the reader to the construct of isomorphism and the need to operationalize and validate the construct within supervisory dyads. First, the background and definition of the construct as well as a theoretical framework for understanding the construct based on the existing literature will be presented. Then, a statement of the problem and purpose statement will be provided that serves foundations for the research objectives and hypotheses for the study. Lastly, the delimitations and limitations of the study will be discussed and various key terms will be operationalized for the reader.

#### **Background**

The construct of isomorphism has been researched since the last 1970's and has confounded the underlying nature of supervisory relationships in regards to ethical, legal, and professional boundaries. Liddle and Saba (1983) defined isomorphism as the "recursive replication" of processes and content within counseling and supervision. Liddle (1988) described isomorphism as the "overlay of overlays" in that supervision and counseling are highly similar in regards to their most basic philosophical, pedagogical, ethical, professional, theoretical, practical, and legal attributes. Hofstadter (1979) defined isomorphism as a phenomenon where categories differing in content but equivalent in process and form can be linked to each other in a manner where they have corresponding

constructs and processes within each category. The Venn diagram is an excellent visual tool for perceiving isomorphism and is presented in Figure 1 in Appendix J.

It seems that while supervision is professionally and ethically predetermined to *not* become a counseling relationship between supervisor and supervisee, the processes, content, and theoretical underpinnings of supervision allow for counseling relationships to foster in supervision (Bernard & Goodyear, 2004). Remley and Herlihy (2004) believed that supervisors should not enter into a counseling relationship with their supervisees but also understand that “the distinctions between the therapeutic aspects of supervisor’s role and the role of the counselor are not always clear” (p. 320). Going further, Friedlander, Siegel, and Brenock (1989) suggested that most supervisory conceptual models are directly derived from counseling theories. There is a need in the literature to examine the construct of isomorphism (Bernard & Goodyear, 2004). Williams (1997) believed that isomorphism occurs on an unconscious level and that affective and cognitive baggage from both sides of the supervisory dyad have drastic implications on the success of supervision. Raichelson et al. (1997) found that supervisees were able to recognize the existence of isomorphism in their supervisory dyads *but did not understand it*. The general lack of understanding and awareness of isomorphism prevailing in supervisory dyads needs to be further investigated.

Isomorphism in supervision has been found to foster a general sense of ambiguity in terms of roles and boundaries between supervision and therapy. Liddle (1991) wrote that “there is probably no more misunderstood notion than the isomorphic nature of training and therapy. However, this argument has been one of the most vital areas of

thinking on how supervisors should conceive of their work” (p. 648). Corey, Corey, & Callanan (2003) perceive supervision as being different from therapy but also believe the process and content inherent in supervision can be therapeutic and growth-producing. White and Russell (1997) concluded from their experiment with isomorphism in supervision that “adopting isomorphism as a framework can be overdone, crucial distinctions between therapy and supervision can be blurred and interaction between supervisor and supervisee can be paralyzed if every transaction is mined for its isomorphic content” (p. 327). Liddle, Breunlin, Schwartz, & Constantine (1984) wrote that because therapy and supervision are isomorphs of each other, the same rules of interaction apply to both. The Association of Counselor Education and Supervision (ACES; 1993) dictated that supervision is not therapy but the constant overlap and repeated behaviors in both supervision and therapy seems to foster a sense of confusion about where supervision begins and therapy ends. Tyler and Tyler (1994) believed that isomorphism, when not processed and understood within the supervisory dyad, causes dual relationships. And finally, Remley and Herlihy (2004) stated, “The distinctions between the therapeutic aspects of the supervisor’s role and the role of the counselor are not always clear” (p. 320), and that just as counselor educators should not start counseling relationships with their students, supervisors should not “establish a therapeutic relationship with a supervisee as a substitute for supervision” (p. 319).

In summation, the construct of isomorphism is associated with the overlays, replications, and similarities between counseling and supervision. The salient structures and foundational attributes of both counseling and supervision do not allow for clear

delineations or distinctions. The ambiguity of roles and professional boundaries within the two systems foster a general sense of confusion about where counseling ends and supervision begins.

### **Theoretical Framework**

This section will outline the primary descriptive and empirical literature regarding the construct of isomorphism so as to create a foundational understanding of how the construct relates to the theoretical framework of counselor education, the process and content of supervision of counselors, and related empirical research. Isomorphism is described as the “overlay of overlays” in that supervision and counseling are highly similar in regards to their most basic philosophical, pedagogical, ethical, professional, theoretical, practical, and legal attributes (Liddle, 1988). The “recursive replication” of counseling-based constructs, behaviors, theories, interventions, models, structures, and cognitions into supervision has drastic implications on the facilitation and success of supervision (Liddle & Saba, 1983). Isomorphism has been found to play an important role in supervision pertaining to training new supervisors, the process of supervision, the content of supervision, and the empirical research.

In regards to the role of isomorphism in counselor education, Liddle et al. (1984) believed that when counselor educators are training new supervisors that they “do well to understand and intentionally utilize with their trainees the same basic principles of change employed in therapy” (p. 141). In addition, Liddle and Schwartz (1983) postulated that supervisors *must* structure and facilitate supervision according to their chosen counseling-based theoretical orientation and *should* teach supervisory skills using

said chosen theoretical orientation. Heath (1982) believed that when training future supervisees in a “learning by doing” environment, counseling-based constructs such as altruism, universality, instilling hope, modeling, recapitulation of the family dynamic, mutual respect, conflict resolution, and establishing rules often foster isomorphism in the training environment. Liddle (1982) wrote that supervision and counseling processes, content, techniques, skills, and goals are interdependent and should be taught in an isomorphic context and manner. Moorhouse and Carr (2001) thought that the presence of isomorphism in the training environment shifts the focus of supervision from the client to the supervisory relationship. Liddle, Breunline, & Schwartz (1988) wrote that the isomorphic nature of training and therapy creates an organizational schema for trainers. It seems that a salient theoretical orientation is necessary between supervision, counseling, and training but a primary caveat is that the focus of supervision can shift away from the client and lead to unethical relationships.

In regards to isomorphism affecting the process of supervision, Roberts, Winek, and Mulgrew (1999) focused on the personal and professional attributes that supervisors and supervisees bring into supervision which allows for isomorphism to occur. They found that supervisors bring personal interests in regards to counseling and supervision to the dyad, bring personal views of the context and relevance of supervision and counseling into the supervisory environment, and bring previous supervisory experiences and communication styles to the dyad. Supervisors model the therapeutic process in how they facilitate supervision using counseling-based theories. Supervisees also tend to recapitulate the family system in supervision, bring previous life and professional

experiences to supervision, and bring affective, cognitive, and emotional baggage to the supervisory dyad. Lee (1999) postulated that supervision and counseling are similar in regards to the emphasis on change and maturation for both clients and supervisees. Schneider (1992) wrote that transference and countertransference always occurs in supervisory dyads as a result of the supervisor using counseling-based techniques to facilitate supervision. Liddle and Saba (1983) believed that the processes of setting goals, establishing roles and boundaries, challenging maladaptive thinking styles, emphasizing relationships and dynamics, using a hierarchical structure, and utilizing counseling-based theoretical orientations to facilitate supervision are examples of isomorphism between supervision and counseling. Edwards and Chen (1999) found isomorphic tendencies between strength-based supervision and counseling where the focus is on strengths, positives, and solutions as well as initiating growth and empowerment in a co-constructed environment. Isomorphic tendencies also exist between solution-focused supervision and counseling whereby supervisors will reinforce small supervisee successes, bolster confidence, competence, and resourcefulness, and finally allow the supervisee to “be the expert” (Thomas, 1994). The isomorphic properties of supervision and counseling affect the core processes that both supervisors and supervisees experience in supervisory dyads.

Isomorphism also highly impacts the content of supervision. Williams (1997) hypothesized that isomorphic content occurs on an unconscious level and therefore its occurrence needs to be examined in every supervisory dyad. It occurs primarily on an unconscious level due to affective, emotional, and cognitive baggage that supervisors and



supervisees bring to the dyad. Williams postulated that this has a drastic influence on both parties and that by emphasizing growth, maturation, reflection, learning, and empathy in the dyad, these occurrences can be processed effectively. Also, Williams believed that members of every supervisory dyad should a) identify, process, and utilize the isomorphic nature of supervision and counseling, b) reflect on affective and emotional occurrences, c) explore similar dynamics between counseling and supervision, d) identify supervisor and supervisee roles in fostering isomorphism, and e) that supervisors should model how to deal with isomorphic occurrences. Lowe (2000) found that a salient theoretical orientation between counseling and supervision allows for better functioning in both and enhances therapeutic and supervisory confidence. Lastly, supervisory success has been predicated on the salient use of counseling-based theoretical orientations in supervision because it affects supervisors' views on a) reality, b) positive therapeutic change, c) relationship dynamics, d) feedback, e) reinforcement schedules, f) goal setting, g) case conceptualization skills, and h) professional philosophy (Gentry, 1986). The foundational content of supervision and counseling are highly similar, especially in regards to what personal and professional attributes and theories supervisors and supervisees bring into the dyad and how these attributes are processed.

Lastly, the research into the construct of isomorphism has yielded some interesting findings. White and Russell (1997) asked 61 Licensed Marriage and Family Therapists to identify similar variables and occurrences between supervision and counseling. The participants identified hundreds of isomorphs between supervision and counseling with the supervisors' behaviors and the setting of supervision being the most

identifiable factors contributing to isomorphism. The researchers postulated five primary facets of isomorphism in supervision: 1) Identifying similar and repetitive patterns, 2) translation of therapeutic models and principles into supervision, 3) identical structure and process in supervision and counseling, 4) isomorphism as an interventive stance, and 5) isomorphic role behavior in supervision and counseling. Raichelson et al. (1997) found that professionals trained in non-psychoanalytic environments recognize isomorphic occurrences in supervision but did *not* understand or perceive how they affected the dynamics, processes, and content of supervision. Supervisor countertransference was a major precursor for isomorphism to occur in supervision (Ladany, Constantine, Miller, Erickson, & Muse-Burke, 2000). Friedlander et al. (1989) believed that most models of supervision are derived from counseling theory and found evidence that the perception of success in counseling as rated by a client leads to the perception of success in supervision as rated by a supervisee. Finally, Frankel and Piercy (1990) found that positive teaching, support and structure given by a supervisor was a catalyst for supervisees showing more effective teaching, support, and structure in the counseling session. The empirical evidence of isomorphism shows that many isomorphs exist between supervision and counseling with the supervisor, the setting of supervision, countertransference, perception of success, and interventions being some of the most important.

### **Statement of the Problem**

Bernard and Goodyear (2004) wrote that isomorphism is a construct that needs to be empirically validated and operationalized to fill a gap in the literature. Isomorphism occurs on an unconscious level (Williams, 1997), is not properly understood by

supervisees (Raichelson et al., 1997), and yet serves a fundamental role in understanding how supervision is facilitated using counseling-based theory, constructs, behaviors, structures, and pedagogy (Gentry, 1986; Liddle et al., 1984; Liddle & Saba, 1983; White & Russell, 1997).

Isomorphism causes unethical counseling relationships to occur in supervision due to the similarities in the processes, content, and behaviors between counseling and supervision (Bernard & Goodyear, 2004). Supervisors are not supposed to enter into counseling relationships with supervisees but due to a lack of clarity in supervisory and counseling roles and strong isomorphic tendencies between both, the delineations between these roles is hard to perceive and must be processed in order to avoid unethical situations (Remley & Herlihy, 2004). Seeing as how the majority of supervisory models come directly from counseling theory (Friedlander et al., 1989), isomorphism tends to foster a general sense of ambiguity in terms of roles and boundaries between supervision and therapy. Liddle (1991) wrote that “there is probably no more misunderstood notion than the isomorphic nature of training and therapy. However, this argument has been one of the most vital areas of thinking on how supervisors should conceive of their work” (p. 648).

### **Purpose of the Study**

According to Bernard and Goodyear (2004), there is a gap in the literature regarding the construct of isomorphism and its empirical validation and operationalization. The purpose of this study is to begin the process of operationalizing the construct of isomorphism by creating an instrument that can measure for levels of

isomorphism in supervisory relationships and testing its psychometric properties. The instrument will measure for levels of isomorphism related to supervisors using counseling-based theory, constructs, behaviors, interventions, and structure to facilitate supervision. The purposive sampling procedure for the project will be targeted at supervisor trainees at the Council for Accreditation for Counseling & and Related Educational Programs (CACREP) -accredited and non-accredited graduate programs, faculty supervisors at CACREP-accredited and non-accredited graduate programs, and clinical supervisors that work in both the public and private sectors. Operationalizing the construct of isomorphism will fill the gap in the literature and allow for mental health professionals to better understand, perceive, and utilize the construct in their professional supervisory practice.

### **Research Questions**

1. What is the internal consistency reliability coefficient for the Isomorphism Scale?
2. What are the underlying factors that exist within the Isomorphism Scale?
3. What are the convergent validity coefficients between the Isomorphism Scale, the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor?
4. How much unique variance (incremental validity) does the Isomorphism Scale add to the SSI-Supervisor above and beyond the SIQ-Supervisor and the SWAI-Supervisor?
5. How well does the Isomorphism Scale differentiate (concurrent validity) between gender, age, education, and experience groups?

**Research Objectives**

1. To establish the internal consistency of the Isomorphism Scale.
2. To determine how many underlying factors exist in the Isomorphism Scale.
3. To determine the convergent associations between the Isomorphism Scale and the SWAI-Supervisor, SIQ-Supervisor, and the SSI-Supervisor.
4. To establish how much unique variance the Isomorphism Scale adds to the SSI-Supervisor.
5. To determine how well the Isomorphism Scale differentiates between gender, age, education, and experience groups.

**Research Hypotheses**

1. The Isomorphism Scale will have a coefficient alpha equal to .75 with approximately 35 items.
2. The Isomorphism Scale will have five underlying factors with eigenvalues above 1.0 that will account for 60% of the variance.
3. The Isomorphism Scale will have convergent validity coefficients of .3 with the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor.
4. The Isomorphism Scale will account for 15% more unique variance in the SSI-Supervisor above and beyond the SWAI-Supervisor and the SIQ-Supervisor.
5. The Isomorphism Scale will not differentiate between gender and age groups but will differentiate between education and experience groups.

### **Delimitations and Limitations of the Study**

In regards to delimitations of the population to be studied in regards to isomorphism, past research has demonstrated that isomorphism occurs on an unconscious level (Williams, 1997) and is not readily understood by supervisees (Raichelson et al., 1997). Potential participants may not readily understand the construct because it has never been validated or operationalized in the literature (Bernard & Goodyear, 2004). This study constitutes the first steps in attempting to do both.

With limitations of the study, it will be challenging to gather a large enough sample to make sound empirical inferences according to the formula proposed by Lounsbury et al. (2005). Also, since this is the first attempt at operationalizing isomorphism using a scale, there are no reliability or validity indices by which to compare the results of the study. Finally, the purposive sampling that will be used in the study will not yield the most generalizable inferences back to the population due to the lack of random selection and random assignment.

### **Definition of Key Terms**

There are some key terms that need to be defined for purposes of having a basic understanding of some of the terminology to be used in the study:

1. Altruism- A supervisor wanting the best for a supervisee in terms of their welfare and success as a counselor (Bernard & Goodyear, 2004).
2. Autonomy- A supervisor promoting a supervisee's freedom to make decisions as well as their own direction and objectives in supervision (Haynes, Corey, & Moulton, 2003).

3. Boundaries- The professional, personal, legal, and ethical limits of a relationship between a supervisor and supervisee (Remley & Herlihy, 2004).
4. Case conceptualization- A process where a supervisor processes and discusses a client's issues with a supervisee in a collaborative manner (Bernard & Goodyear, 2004).
5. Clinical supervisor- A mental health professional with at least a Master's degree that supervises counselors in a private or public mental health practice environment.
6. Counseling theoretical orientation- The counseling theory that a supervisor utilizes when conducting professional counseling practice (Howatt, 2000).
7. Countertransference- An intrapsychic process that involves unconscious reactions caused by supervisory interactions related to a supervisor's unresolved personal issues or internal conflicts that are projected onto supervisees (Ladany et al., 2000).
8. Dynamics- The ways in which supervisors and supervisees interact with each other and in relation to all parts of the therapeutic system including clients and administrators (Bernard & Goodyear, 2004).
9. Empathy- A supervisor showing an understanding, awareness, and sensitivity to a supervisee's experience in counseling and in supervision (Haynes, Corey, & Moulton, 2003).
10. Empowerment- Supervisors allowing supervisees to identify and use power by letting supervisees think about clients in new ways, formulate their own interpretations, devise interventions, and "take the lead" in supervision (Haynes, Corey, & Moulton, 2003).

11. Faculty supervisor- A professor of any rank at a CACREP-accredited or non-accredited program who actively supervises Master's level and/or PhD level graduate students in counseling.
12. Feedback- A process where a supervisor evaluates and assesses a supervisor's progress in supervision and counseling in a verbal manner (Friedlander et al., 1989).
13. Goals- The purposes and objectives of supervision that are negotiated between the supervisor and supervisee (Haynes, Corey, & Moulton, 2003).
14. Hierarchy- The organization of supervision where the supervisor holds a position of power over the supervisee due to more expertise, education, and experience in counseling (Bernard & Goodyear, 2004).
15. Instilling hope- The process of a supervisor imparting a sense of accomplishment and future success for supervisees (Bernard & Goodyear, 2004).
16. Isomorphism- The level with which supervisors use counseling-based theory, processes, content, skills, constructs, behaviors, interventions, and structures to facilitate supervision (White & Russell, 1997).
17. Maturation- The underlying philosophy of supervision postulating that supervisees should grow and develop professionally and personally in supervision (Bernard & Goodyear, 2004).
18. Modeling- A behavioral process where a supervisor shows a supervisee how to do something in supervision or counseling by doing it themselves (Bernard & Goodyear, 2004).



19. Recapitulation of family systems- A process in supervision where the supervisee unconsciously relates to the supervisor in the same fashion as in family situations (Bernard & Goodyear, 2004).
20. Reflection- A process whereby supervisors and supervisees give thought and consideration to the occurrences in counseling and supervision as well as their perceptions of the occurrences (Bernard & Goodyear, 2004).
21. Reinforcement- A supervisor encouraging and rewarding a supervisee's actions and behaviors in both supervision and counseling (Bernard & Goodyear, 2004).
22. Resistance- A self-protective behavior used when a supervisee feels threatened by the supervisor's influence, the supervisory experience, tasks in supervision, and plans made with clients (Bernard & Goodyear, 2004).
23. Roles- The functions or parts that supervisors and supervisees play in supervision (Bernard & Goodyear, 2004).
24. Solution-focused interventions- A type of supervisory intervention that assumes that the supervisee is the expert and has the ability to solve client issues, the supervisors work in a collaborative fashion with supervisees, and empowering the supervisee to grow in supervision (Haynes, Corey, & Moulton, 2003).
25. Strengths- Innate abilities and qualities that supervisees possess that increase their ability to be successful in counseling and supervision (Haynes, Corey, & Moulton, 2003).
26. Supervision- An intervention provided by an experienced professional to a less experienced professional that is evaluative, occurs over time, strengthens the competency

and skills of the less experienced professional, and monitors the quality of services rendered to clients in a gatekeeping capacity (Bernard & Goodyear, 2004).

27. Supervisor trainee- A counselor education PhD student at a CACREP-accredited or non-accredited program who has completed an advanced course in supervision as well as at least 10 hours of supervisory internship.

28. Supervisory dyads or relationships- An experiential learning process that assists supervisees in developing therapeutic and professional competence where a professional counselor supervisor who has received specific training in supervision facilitates professional growth of a supervisee through monitoring client welfare, encouraging compliance with legal, ethical, and professional standards, teaching therapeutic skills, providing regular feedback and evaluation, and providing professional experiences and opportunities (Giordano, Altekruze, & Kern, 2000).

29. Therapeutic principles of change- The underlying philosophy of change thought to be produced in clients when espousing to a particular counseling theoretical orientation (Howatt, 2000).

30. Transference- An internal phenomenon where a supervisee projects feelings and emotions associated with past events or occurrences onto a supervisor in an unconscious fashion (Bernard & Goodyear, 2004).

31. Working alliance- The collaboration between supervisors and supervisees in regards to agreement on supervisory goals, the tasks necessary to reach those goals, the interpersonal bond that exists between supervisors and supervisees (Bordin, 1983).

## Summary

In summary, isomorphism is a construct that describes the similarities, overlays, and replications across supervision, therapy, and training (Hofstadter, 1979; Liddle & Saba, 1983; Liddle, 1988; White & Russell, 1997). Isomorphism affects all aspects of the therapeutic system including counseling, supervision, and training and has great influence on the processes, content, philosophy, and theory behind all three in professional practice (Liddle & Schwartz, 1983; Gentry, 1986; Friedlander et al., 1989; Roberts et al., 1999).

Isomorphism fosters a sense of confusion and lack of clarity about the role boundaries between supervision, counseling, and training (Remley & Herlihy, 2004). Most supervision models are taken directly from counseling theory (Friedlander et al., 1989) but yet ACES (1993) proclaimed that supervision and counseling are supposed to be different. Liddle et al. (1984) believed the same rules of interaction apply to supervision and counseling, but, in turn, educators and supervisors should not start counseling relationships with trainees and supervisees (Bernard & Goodyear, 2004).

Isomorphism is a construct that has not been validated and operationalized in the literature (Bernard & Goodyear, 2004). The construct occurs on an unconscious level (Williams, 1997), is not properly understood and perceived by supervisees (Raichelson et al., 1997), and yet it serves a foundational and integral role in how supervision, counseling, and training are facilitated in both learning and professional environments (Liddle, 1982; Gentry, 1986).

The primary purpose of this study is to empirically validate and operationalize the construct of isomorphism as it occurs in supervisory dyads using a self-report survey

methodology. Chapter two will present a literature review of the construct in regards to its differences and similarities with parallel processes and its effects upon counselor education, the process and content of supervision, and the previous empirical research into isomorphism. Then, a literature review focused on survey research, psychometrics, inferential statistics, and instrumentation will follow. Chapter three will present the survey research methodology to be used in the proposed study with sections focused on the research problem and purpose, research questions and hypotheses, sampling techniques, survey creation, data collection, instrumentation, database construction, data cleaning, and psychometric and inferential analyses.

## **Chapter 2**

### **Literature Review**

#### **Introduction**

This chapter will present the existing descriptive and empirical literature pertaining to the construct of isomorphism as it pertains to parallel processes, counselor education, the supervisory process, the content of supervision, and empirical research. Second, the empirical reasoning behind survey research methodologies will be presented in regards to the categorization and structure of surveys, the steps of creating a valid survey, writing survey items, and sampling methodologies in survey research. Then, the use of psychometrics in survey creation will be examined in regards to reliability, exploratory factor analysis, and validity. Next, a review of inferential statistics will be presented which will cover the use of MANOVAs, correlations, and multiple regression in survey research. Lastly, the nomological network of instruments created for the study will be examined.

#### **Isomorphism**

Hofstadter (1979) defined isomorphism as a phenomenon where categories differing in content but equivalent in process and form can be linked to each other in a manner where they have corresponding constructs and processes within each category. Isomorphism is defined by White and Russell (1997) as:

The phenomenon whereby categories with different content, but similar form, can be mapped on each other in such a way that there are corresponding parts and processes within each structure. Therefore, when the supervisory system is mapped

onto the therapeutic system, the roles of supervisor and supervisee correspond to those of therapist and client, respectively (p. 316).

Liddle and Saba (1983) defined isomorphism as the “recursive replication” of training modalities, processes, and content within counseling and supervision. Liddle (1988) described isomorphism as the “overlay of overlays” in that supervision and counseling are highly similar in regards to their most basic philosophical, pedagogical, ethical, professional, theoretical, practical, and legal attributes. Essentially, based on the aforementioned definitions of the construct from the literature, supervision and therapy can be considered isomorphs of each other due to the overlap of their subsequent foundational principles and the similar phenomena that occur in both.

According to Bernard and Goodyear (2004), there is a gap in the literature regarding the construct of isomorphism and it could be easily operationalized. The focus of this literature review is to create an empirical foundation for the validation of the construct of isomorphism. The following sections of the literature review will present the previous research pertaining to parallel processes, the construct of isomorphism as a framework in training, its effects on the process and content of supervision, and empirical research related to the construct. Then, there will be an exploration of the literature pertaining to survey research, psychometrics, inferential statistics, and instrumentation.

### **Isomorphism and Parallel Process**

This section outlines the similarities and differences between the constructs of isomorphism and parallel process. Parallel process is a construct that closely resembles isomorphism and has been researched much more extensively than the latter (Bernard &

Goodyear, 2004). Whereas isomorphism has its philosophical roots in structural and strategic family systems theory, the concept of parallel process comes from the psychodynamic school of thought in regards to supervision (Haley, 1976; Schneider, 1992). Friedlander, Siegel, and Brenock (1989) defined parallel process as a situation within supervision where “supervisees unconsciously present themselves to their supervisors as their clients have presented to them. The process reverses when the supervisee adopts attitudes and behaviors of the supervisor in relating to the client” (p. 149). There are a number of reasons stated in the literature as to why the phenomenon of parallel process occurs within supervision. Russell, Crimmings, & Lent (1984) believed that supervisees closely identify with their clients which can cause the supervisees to recapitulate reactions from their supervisors that they themselves felt in response to clients. Going further with the supervisee identifying with the client, Frawley-O’Dea and Sarnat (2001) wrote that the unconscious identification with the client that the supervisee is unaware of causes the supervisee to enact the therapeutic dynamic with the supervisor. In regards to training, Ekstein and Wallerstein (1972) postulated that supervisees paralleled clients’ problems with their own learning problems in training. Salient themes in the literature pertaining to the catalysts for parallel process to occur in supervision include client issues affecting other members of the therapeutic system, unconscious processes of members of the therapeutic system, and different roles played by supervisors, supervisees, and therapists throughout the therapeutic system (Bernard and Goodyear).

It is important to be able to compare and contrast the constructs of isomorphism and parallel process. Since isomorphism comes from structural and strategic family theory (Haley, 1976; Minuchin, 1974), it seems natural that the focus of this phenomenon is on the interrelational and structural uniformity between training, supervision and therapy. In contrast, parallel process comes from psychodynamic supervision literature (Schneider, 1992) where the focus is centered on the unconscious and intrapsychic occurrence of parallel processes in supervision as well as the potential transference and countertransference issues in supervision and psychotherapy. On the surface, it seems that the phenomena can be interchangeable or as Bernard and Goodyear (2004) write, “They seem in many respects to be two sides of the same coin” (p. 137). Bernard and Goodyear believed that parallel process was a rather vague construct that would be more difficult to operationalize than isomorphism because of the nature of measuring unconscious manifestations. In an attempt to coalesce the two phenomena, Abroms (1977) created the term metatransference where one should “think in parallel structure at different levels of abstraction, that is, to recognize the multilevel, isomorphic mirroring of interactional processes” (p. 93). The concept of metatransference makes the strongest comparison between the two constructs by proclaiming that professionals should contemplate the deeper and underlying meanings of both unconscious and interactional processes in supervision and therapy and professionals should consider both as relevant isomorphs of each other.

In summation, isomorphism is a construct with philosophical roots in structural and strategic family systems theory that focuses on interrelational aspects of supervision,



whereas parallel process is a construct coined by the psychodynamic school of thought in regards to counseling that focuses more on unconscious and intrapsychic occurrences in supervision.

### **Isomorphism and Supervisor Training**

This section outlines the research pertaining to isomorphic nature of training future supervisors and therapists. Liddle et al. (1984) examined the concept of isomorphism in a descriptive article focused on how supervisors are trained in a pedagogical environment and how they obtain practical experience. Liddle et al. believe that isomorphism can be used as a training format “to provide several complementary contexts to learning supervision” (p. 143). Liddle et al. write:

Clarifying the ways in which one’s theory of therapeutic change are mirrored in one’s approach to trainee change (theory of learning) allows trainers to use these interconnecting dimensions as a blueprint or framework for action. Trainers do well to understand and intentionally utilize with their trainees the same basic principles of change employed in therapy. Setting goals, thinking in stages, contextual sensitivity, joining, and challenging realities are all operational aspects of both training and therapy. (p. 141).

Therefore, the utilization of therapeutic principles in the training environment can be perceived as catalysts for trainee learning. Some primary examples of isomorphism between therapy and the training environment include the content and form of trainee interactions having positive or negative effects on the trainee’s ability to foster personal autonomy, confidence, and clarity in conceptualizing cases and trainers challenging the

epistemology of trainees so that professional growth can occur in the training environment (Liddle et al.).

Heath (1982) postulated that isomorphism is a tool that can be used to train family therapists and supervisors in the context of an observation room. Heath believed that trainees experience a much stronger and facilitative learning environment when the group dynamics associated with “learning by doing” and the processing of ideas occurs. Group dynamics such as altruism, instilling hope, universality, and recapitulation of family systems in the training environment create situational contexts between trainees where they can obtain social and emotional rewards from each other (Heath). The trainer also has the opportunity to model positive therapeutic and supervisory behaviors such as positive acceptance of strategies, showing cooperation and respect to group members, good communication and conflict resolution skills, giving feedback and reinforcement, and establishing rules (Heath).

Moorhouse and Carr (2001) presented a training modality for utilizing isomorphic and collaborative behaviors in live supervisory phone-ins. Moorhouse and Carr posited that isomorphism plays a role in this type of training but that the intense level of attunement with the trainer can cause the interventions to be too creative and abstract and may cause some negative outcomes or resistance. For example, transference and countertransference between members of the supervisory dyad could shift the focus of the intervention away from the clients and towards the internal cognitive, emotional, and affective needs and wishes of the trainer and trainees. Moorhouse and Carr felt that the collaboration between the trainer and trainee is critical in this kind of learning

environment and that isomorphism should be utilized in a responsible and cognizant fashion.

In terms of developing skills in the training environment, Liddle and Schwartz (1983) suggested that isomorphism plays an important role in building skills during supervision. Liddle and Schwartz concluded that a) trainers must bracket themselves from presuppositions and values that they have incurred before beginning a supervisory or training relationship, b) trainers and supervisors must structure and facilitate supervision based on their own counseling based theoretical orientation because it is where the majority of their skills and competencies have been obtained, c) trainers and supervisors should teach supervisory skills through the framework of their counseling based theoretical orientation in order to teach therapeutic skills and interventions in training, d) trainees should be allowed to develop their own style of supervision, and e) trainees' autonomy must be fostered in the training and supervisory environment. Liddle and Schwartz affirmed that the trainer offers structure to the supervisory setting due to the isomorphic nature of the training and therapeutic environments. Furthermore, according to Liddle and Schwartz, the structure includes the initial behaviors of the trainer that guide the trainee towards supervisory goals and interventions on the client's behalf.

Liddle (1982) outlined recommendations for the training of supervisors. Liddle postulated, "Perhaps the most essential element of training family therapists is the degree to which we teach or facilitate trainees' capacity to perceive, conceive of, and experience the world from a transactional, contextual or ecosystemic perspective" (p. 86). The

concept of isomorphism is seen here in that the model of training chosen by the trainer closely resembles the basic philosophical principles of the trainer's counseling based theoretical orientation. Liddle believed that the process, content, techniques, skills, and goals of therapy and training are always interdependent and should therefore be taught in an isomorphic context and manner. Going further, Liddle hypothesized that training experiences that occur in an isomorphic context should focus on successful and positive acquiring of skills and competencies, which is quite similar to therapeutic situations. Liddle stated that several variables must be taken into account where training a therapist or supervisor including a) trainee developmental level, b) the time frame for training, c) experiential versus didactic learning, d) resources, e) the client population, and f) the counseling based theoretical orientation and expectations of the supervisor.

Isomorphism also plays an important role as a training tool in the context of consultation (Botelho, Seaburn, & Harp, 1991). Botelho et al. believed that family patterns tend to be isomorphic and carry over into other systems where relationships and interactions occur. A specific problem identified by Botelho et al. was that when systems become isomorphic, the range of choices for relations and interactions are greatly reduced. In regards to interactions with clients, Botelho et al. wrote that the isomorphic tendencies of the family of origin can negatively affect interactions if the family of origin dynamics and the client's requests and mannerisms are identical and cause psychological or emotional distress. These issues should be processed by trainers should have trainees clarify their stance in any given situation and sympathize with the client's needs (Botelho et al.).

Liddle and Saba (1985) detailed the epistemologic foundations of a structural-strategic training paradigm that utilizes many isomorphic aspects between training and therapy. In terms of the isomorphic nature of theory, the authors believed it was important to have trainees expand upon their worldviews and try new things, much like the increasing of client complexity in therapy. Trainers also should expand upon and use the strengths and competencies of trainees to develop their own inner resources. The role of the supervisor or trainer helps to organize and structure the training environment in order to foster learning and positive professional change (Liddle & Saba). The authors also argued that trainees should have their worldviews challenged just as clients' worldviews are challenged in therapy. It is also important to role play in supervision and training because it forces trainees to explore and generate new alternatives just as they will have to do in therapy (Liddle & Saba). Also, there should be a lot of consideration paid towards the relational aspects of training and supervision because intra- and interpersonal behavior and cognitive patterns will recursively replicate in the therapeutic system (Liddle & Saba). At a conceptual level, the authors posited that certain isomorphs between training and therapy must be considered including a) a safe and trusting learning environment should be given to trainees where personal and professional growth can occur, b) the hierarchical nature of training and supervision must be explored, c) personal and professional boundaries must be processed, d) supervisors must be competent, flexible, and willing to adapt to any supervisory situation, and e) that all training and supervisory modalities must be goal-oriented in some form or fashion (Liddle & Saba). At a process level, isomorphs exist between training and therapy, including a) the

replication of patterns between therapist/client and supervisor/supervisee, b) an emphasis on sequential and developmental stages of personal and professional growth, c) the assessment of trainee growth based on feedback and relevant data, d) interventions made on behalf of the trainee to foster growth and experience, and e) acknowledgement and processing of interrelational phenomena between trainer and trainee (Liddle & Saba). Lastly, at an interventional level, isomorphs exist between training and therapy, including a) the organization and structure of training, b) promoting the hope of trainees' success in training, c) challenging worldviews and perceptions of reality, d) reframing and reinforcing behaviors, d) role playing therapeutic and training occurrences, and e) giving feedback (Liddle & Saba). Liddle and Saba summed up the isomorphic nature of training and therapy when they wrote, "training and therapy might themselves be seen as shows cast in different directions—perhaps with the central essence being their respective theories of learning and change" (p. 45).

Liddle (1986) described how isomorphism plays a pinnacle role in the training of future supervisors. The author believed that the interconnections between therapy and training models greatly affect the processes and content of any pedagogical or supervisory environment. Isomorphism often causes both members of a supervisory dyad to "conceive of the processes of change in their respective domains in exactly the same way" (p. 110) and therefore utilize similar principles of change in the pedagogical environment. The author stressed that support and challenge are imperative to trainee growth, much like in therapeutic situations with clients and that trainees react well then they are supported by trainers and supervisors. Lastly, the isomorphic experience of

training alters a trainee's perceptions of human behavior and helps to develop skills which can translate into clinically significant changes in client well-being. Liddle wrote, "If therapy's goal can be generically thought of as the contextualization of our clients, the goal of training likewise can be considered the contextualization of our trainees" (p. 111).

Liddle (1991) conducted an in-depth analysis of the previous literature pertaining to training and supervision in family therapy. In regards to isomorphism, Liddle believed that supervisory interactions can be used in an interventional manner to help therapists change their behavior and cognitions in regards to practice which will in turn positively affect the entire therapeutic system. When change occurs in the supervisory dyad, it is readily carried over into the therapy relationship (Liddle). Liddle wrote that there is an inherent positive attribute in isomorphism that "refers to the interconnection and interdependence of the principles that organize therapy and training...the goals, methods, and means of evaluation in therapy can be utilized as an aid to conceptualization and action in training" (p. 649). The isomorphic content areas of development, cross-cultural competencies, and hierarchy and power differentials across different levels of the therapeutic system are adopted by trainees and can greatly affect their value systems (Liddle). Integrating these isomorphs into training assists trainees in thinking in more complex and deeper ways which helps them to adapt to the ever changing issues that exist in therapy and in society (Liddle).

Lee (1997) used a case history report to show a clinical example of isomorphism. Lee believed that the similarities between the supervisor-therapist relationship and the therapist-client relationship had strong diagnostic and intervention value. He

hypothesized that any change or modification to the dynamics of the supervisor/therapist subsystem should exact the same type of change in the therapist/client subsystem. And therefore, if there are negative supervisory interactions or dynamics occurring in the supervisory subsystem, negative outcomes will follow in the therapy subsystem. In one of his own supervisory relationships, he saw that when he made appropriate progress in developing differentiation from the supervisee, the supervisee was able to step back from the family dynamics and objectively differentiate herself from the family and better outcomes were experienced for all members of the therapeutic system (Lee).

Anderson, Rigazio-Digilio, & Kunkler (1995) conducted a literature review regarding the training and supervision modalities in family therapy as well as the current issues and future trends of the profession. The authors attempted to make a clear delineation between training and supervision. They defined training as all the factors related to imparting knowledge to future family therapy professionals including supervision, developing curriculums, and didactic classroom instruction (Anderson et al.). Supervision was defined as a more purposeful and focused means for imparting information through direct evaluation of trainee clinical skills, knowledge, and attitudes (Anderson et al.). Regardless of training and supervision, the authors postulated that therapy models have greatly affected the contents and methodologies of supervision and training modalities. They wrote, “Although the concept of isomorphism has a number of implications and applications in therapy and supervision, one important aspect is the simple notion that supervisors train their trainees in the method and model of therapy that they themselves practice” (p. 490). Going further, the authors believed that the use of



therapeutic models in training refines each models' core philosophical assumptions and treatment methodologies and that successful training and supervision is "dependent upon having developed clear conceptions about the therapeutic context, the nature of change, the role of the therapist, and the specific therapeutic skills needed for positive client outcomes" (p. 491).

Weir (2009) explored isomorphic trends in training, supervision, and therapy and surmised the existence of three specific types of isomorphism in marriage and family therapy: Mimetic, coercive, and normative. Weir believed that the primary research focus on isomorphism was on the systems and subsystems of the therapeutic system rather than on the inherent isomorphs that exist within the industry and field of therapy as a whole. This primary focus was considered to be mimetic isomorphism, according to Weir, where trainees utilized the theoretical orientation and philosophy of their supervisor in their own practice. This type of isomorphism often occurs in graduate programs where training occurs within the context of a specific theoretical orientation being taught in all aspects of the graduate program (Weir). However, mimetic isomorphism is thought to occur most often when there is a degree of uncertainty in any part of the therapeutic system (Weir). When a therapist runs into uncertainty with a client, it is natural for the therapist to depend upon the supervisor to fix the situation and therefore the therapist will use any approach given by the supervisor. Due to this propensity for uncertainty to cause isomorphic behavior in therapists, supervisors must be cognizant of when uncertainty is occurring and assist the supervisee as needed. At the same time, it is important for supervisors to not save the therapist every time that

uncertainty occurs so as to promote the autonomy and growth of supervisees (Weir). The second type of isomorphism, coercive isomorphism, occurs due to the business and industry side of therapy (Weir). Therapy is a business where outside entities such as insurance companies and professional associations have an interest in influencing therapy as an industry. Therefore, due to the coercion of outside entities acting upon and influencing therapeutic practice, therapists must adapt to these outside forces in order to be successful professionals. If therapists one day want to be billable with insurance companies, then they will need to use therapeutic modalities that are conducive towards meeting reimbursement requirements of these companies. Therefore, training programs must teach trainees certain types of modalities that will in the future ensure that they will be financially stable and effective in a competitive marketplace (Weir). The third type of isomorphism postulated by Weir, normative isomorphism, comes from the professionalization of therapeutic practice. Accrediting bodies of mental health programs exert their influence on therapeutic training by establishing standards of care, a body of ethics, and educational benchmarks that training programs must meet in order to be accredited. When training programs abide by the requirements of these accrediting bodies, the graduates of these programs assimilate the requirements into their own practice and become socialized and reinforced for utilizing them (Weir). Weir believed that it is important for supervisors and trainers to be aware of these isomorphic forces that trainees are exposed to in all facets of training and gave some suggestions for working with these forces. Weir said interventions include a) discussions regarding the effects of managed care on therapeutic practice, b) integrating theories conducive towards managed

care reimbursement into training, c) teaching therapists to be aware of the effects of managed care in their organizations, d) helping students develop professional identities that represent the requirements and standards of accrediting bodies, e) developing goals that will assist students in meeting criteria established by governing bodies within therapeutic practice, f) helping students understand the accrediting and licensing processes in therapeutic practice, g) reviewing codes of ethics and applying them to therapeutic situations, and h) helping students in times of uncertainty while also helping them to develop their own therapeutic autonomy and confidence (Weir).

In summation, isomorphism plays an integral role in the training of supervisors. This section has shown that a) there are many overlapping systems and constructs between therapy, supervision, and training, b) isomorphism plays a role in trainee learning and the acquiring of supervisory skills, c) isomorphism is used in several training environments such as live supervision and session phone-ins, d) a trainer's counseling based theoretical orientation carries over into the training environment, and e) isomorphism should be used as a training tool in both supervisory and therapeutic training environments. Next, the role of isomorphism in the process of supervision will be explored.

### **Isomorphism and the Supervisory Process**

This section outlines the research pertaining to the isomorphic nature of processes in training, supervision, and therapy. Isomorphism between therapy and training greatly affects the processes of supervision according to Roberts, Winek, & Mulgrew (1999). Roberts et al. found many processes in supervision and therapy that affect the entire

therapeutic system. In regards to the supervisor, Roberts et al. suggested that personal interests in counseling and supervision, a supervisor's view of the context and relevance of supervision, and the supervisor's previous supervision experiences affect the process of supervision. Roberts et al. also distinguished supervisee variables that affect the supervisory process. These variables include a) the supervisee's tendency to recapitulate the family system, b) a supervisee's previous life and professional experiences, c) the supervisee's chosen theoretical orientation, and d) any other affective, cognitive, and personality attributes the supervisee brings to the supervisory and training dyad. The supervisor/supervisee relationship can affect the process of supervision in that the communication styles of the participants, the context and environment of supervision, and the ability of the supervisor to give feedback and the supervisee's ability to receive it all have important meaning (Roberts et al.). The supervisee's level of personal and professional development plays a large role in the process of supervision and Robert et al. wrote that "the stage of the supervisee's development predicts the nature of isomorphism issues that emerge in supervision" (p. 296). Perhaps the most significant isomorphic occurrence in supervision, according to Roberts et al., is that the supervisor models the therapeutic process by their interaction with the supervisee which leads to "significant learning of therapeutic value" (p. 297).

In contention with the aforementioned descriptive article, Lee (1999) believed that Roberts et al. posited that therapeutic and supervisory growth occurred in a sequential and linear fashion whereas he believed that the entire therapeutic system changes and matures constantly over the course of the process of supervision, training,

and counseling. The maturation and change brought upon the supervisory dyad affects the way that therapy is conducted and how the supervisor relates to training and supervision of therapists (Lee). Schneider (1992) postulated that the supervisor must be able to identify transference and countertransference issues within the supervisory and training relationships because these elements will always be present. In terms of process, identifying and working through these issues clarifies the boundaries of relationships in all parts of the therapeutic system (Schneider).

Liddle and Saba (1983) identified the most important isomorphs, in their view, between therapy and training and provided context to how each is relevant. Liddle and Saba hypothesized that in regards to goals, therapists introduce clients to goals and objectives that they can obtain or have never tried which is isomorphic to the supervisor or trainer who guides the trainee to a higher level of conceptual and perceptive thinking during training. The trainer's role, according to Liddle and Saba, is an isomorph of a therapist's role in that the strengths of a person are utilized to improve upon competency and functioning within the therapeutic system. Maladaptive behaviors and narrow thinking are challenged both in therapy and in training in Liddle and Saba's view. Recapitulations and re-enactments of therapeutic situations are also phenomena facilitated in therapy, training, and supervision. Liddle and Saba also believed that a) there is an emphasis on relationships, dynamics, and boundaries in both therapy and training, b) there is always some sort of hierarchical structure to therapy and supervision and this structure should be defined early in a relationships so that organization within each dyad is fluid, c) the trainer's role in training closely mirrors the behaviors of a

therapist, d) trainers are expected to be flexible in terms of the theoretical orientation just as a therapist may have to use an eclectic approach to help a client with complex issues, and finally e) trainers set goals for their trainees just like therapists help clients create goals. Essentially, the isomorphic use of therapeutic models in both therapy and supervision causes both client and supervisee growth and development.

In an article focused on strength-based supervision, Edwards and Chen (1999) suggested that the isomorphic nature of focusing on positives, strengths, solutions, and multiple perspectives in supervision and therapy greatly reduced the hierarchical nature of some supervisory dyads and allows for supervisees to experience growth in a co-constructed supervisory environment. The authors posited that when the supervisor facilitates supervision and models such behaviors within the dyad that supervisees will use these kinds of therapeutic interventions for the betterment of their clients. Edwards and Chen also concluded that starting supervision under this framework from the beginning allows for the supervisee to feel more capable as they develop as a professional.

Thomas (1994) also affirmed that the isomorphic nature of facilitating therapy and supervision with a solution-focused approach builds a strong framework for supervisees to experience positive growth. The major philosophical tenets of this approach, respect and curiosity, allow for the supervisee to become the expert in the supervisory dyad as it pertains to the client's issues. The use of this isomorphic framework moves away from the traditional hierarchical nature of supervision and allows for a co-constructed consultative dyad where each member has equal standing. Thomas

believed the focus should be on solving problems and generating outcomes. Thomas also adhered to the belief that a supervisor should give positive reinforcement to the trainee for small successes because it leads to feelings of competence and expansion of the trainee's inner resources.

Behan (2003) found that isomorphism is an integral part of narrative supervision in practice. The author felt that a salient worldview between supervisor and supervisee provides a facilitative framework that can make sense of all the dynamics and information that exists within any supervisory dyad. Also, the author found from personal experiences in supervision that therapists often ground themselves in the narrative of therapeutic sessions and copy the actions and behaviors of the supervisor in order to make sense of therapeutic occurrences. Using the narrative approach to supervision, Behan often interviewed supervisees about how therapeutic practice was impacting them personally, how they integrated aspects of their own life into their practice, and how they were making the narrative approach in supervision work for their own benefit. Supervision is often perceived as problem-solving according to Behan and this perception of supervision closely resembles commonly used practices in therapy. Behan sees this as a potentially negative supervisory practice and even wrote, "I have seen many well-meaning supervisors get off track by over-focusing on the client instead of the supervisee in relation to the situation" (p. 34). Behan thought that it was important to a) begin supervisory relationships with narrative explorations of supervisees' life experiences, b) explore reasons for why supervisees entered the therapeutic field, c) have conversations where supervisees' perspectives are taken into account in an active and

mutual manner, d) incorporate supervisees' meaningful relationships into therapeutic practice, and e) engage supervisees' imaginations and personal strengths to build solutions to client issues (Behan).

Boyd (2007) believed that isomorphism can be helpful when working and thinking in a systemic fashion within supervision and therapy. Boyd perceived the entire therapeutic system as containing two complex structures: The therapist and the client as one structure and the therapist and the supervisor as the other structure. The overlapping of the structures comes from the helping of others, essentially. The therapist seeks to help the client while the supervisor seeks to help the therapist help the client (Boyd). Occurrences in either structure tend to "echo" in the other structure. The primary example of this in Boyd's article was a time when a general sense of hopelessness was experienced by the client in therapy and then the sense "echoed" to the therapist and then to the supervisor. When the isomorphic "echo" was perceived and processed by the therapist and the supervisor in supervision, the perception and processing of the "echo" helped the therapist to work with the client on working through the sense of hopelessness (Boyd). Furthermore, Boyd posited that it is absolutely necessary to explore supervisees' family of origin to notice relationship patterns both with supervisors and clients.

Rothberg (1997) believed that isomorphism can be used as an intervention within the supervisory dyad. Rothberg thought that within both supervision and therapy, goals are always set towards working for the beneficence of the client or supervisee and that the setting of goals helps both acquire necessary skills towards promoting positive change. It is also the goal of the supervisor, much like a therapist, to help supervisees to



gain insight into therapeutic issues and work through them (Rothberg). Rothberg also believes that “it is integral as well as to my belief that my model of change for therapy will equal my model of change in learning” (p. 168). It is also important for supervisors to teach therapeutic skills using their own theoretical orientation so as to develop the skills and competencies of supervisees (Rothberg). Lastly, Rothberg believed that the use of isomorphic tendencies between therapy, supervision, and learning a) helps supervisees gain experience in regards to using theoretical approaches, b) involves supervisees with clients in the therapeutic environment, c) gives them a foundation in the early stages of training when they do not have much experience, d) allows them to reach higher developmental stages, and e) gives them the opportunity to grow as professionals in terms of knowledge and skills.

Sand-Pringle, Zarski, & Wendling (1995) analyzed the nature of supervisory processes when working with violent clients and found seven overriding themes in their work pertaining to the isomorphic nature of supervision and therapy. Each of the themes addresses the role of the supervisors in the therapeutic system and the isomorphic nature between the supervisor/supervisee relationship and the supervisee/client relationship. The first theme is structure where supervisors structure supervision to include pedagogical, directive, and positive experiences for supervisees. The second theme is predictability where a contract is established between the supervisor and supervisee so that the supervisee can know what is to be expected of them as well as to articulate the long- and short-term goals of the supervisory relationship. This theme also adds to the first theme because the contract outlines the basis of the structure and hierarchy of the

supervisory relationship. The next theme is making the covert overt or by processing family of origin issues, unconscious beliefs and actions, and other underlying dynamics that can occur in supervision. These types of covert occurrences are often dealt with using role playing and narrative processing of therapeutic situations. Theme four is perpetuating crisis where supervisors promote the process and content of therapy in dealing with client issues rather than having intrinsic and personal reactions to clients by developing strategies to guide the supervisee in emotionally, affectively, and cognitively charged therapeutic situations. The fifth theme is hierarchy and boundaries where the supervisor takes steps to model clearly delineated and professional boundaries within the supervisory relationship. The sixth theme is maneuverability where supervisors augment supervisees' ability to perceive client issues along a continuum of different contexts and theoretical orientations and encouraging the supervisee to be the "expert" and take charge of therapeutic situations. The last theme is metaperspective where the supervisor assists the supervisee in developing treatment goals and plans related to client issues and generalize all therapeutic occurrences to overall professional development. The utility of these themes within supervisory dyads essentially act as catalysts for supervisory processes and content to exist in the dyads and promote supervisee growth (Sand-Pringle, Zarski, & Wendling).

Burnham (2010) wrote a book chapter related to the nature of reflexive relationships between supervision and learning theories. Burnham believed that "most models of therapy transfer their intrinsic ideas, values, practices, and skills into supervisory practices" (p. 52). He also believed that the isomorphic transfer from therapy

to supervision occurs in a) non-intentional or unconscious, b) imposed or without choice, or c) rigorous or direct replication manners. There are also many advantages to this isomorphic transfer from therapy to supervision including a) the success in education associated with transferring training modalities across contexts, b) convenience, c) efficiency, d) promoting and enhancing the competencies of a practitioner and their chosen theoretical orientation in different environments, and e) giving supervisees needed experiences with therapeutic skills, concepts, and practices in a learning environment (Burnham). Disadvantages of isomorphic transfer include a) the inhibition of supervisory processes due to the language and dynamics of supervision too closely resembling that of therapy, b) supervisees not being able to perceive if they are in supervision or in therapy, c) supervisors acting like therapists rather than supervisors, and d) crossing professional, ethical, and legal boundaries (Burnham).

In summation, previous research has shown that a) there are many contextual isomorphs between therapy and training, b) transference and countertransference will always occur in a supervisory dyad as a result of isomorphism, c) positive growth can occur in a linear or constant fashion in terms of supervisory process due to the presence of isomorphism, d) isomorphism can reduce the hierarchical nature of supervision, and finally e) isomorphism plays a critical role in the process of supervision. Next, the role of isomorphism in the content of supervision will be addressed.

### **Isomorphism and the Content of Supervision**

This section outlines the effects of isomorphism on the content of supervision. Isomorphism in supervision pertains to the interrelated behaviors and concepts of both

therapy and supervision that play integral roles in the facilitation of supervision. Examples include focusing on the strengths of supervisees, supervisors showing empathy towards supervisees that are struggling in any given situation, and the construction of counseling goals and interventions. Williams (1997) believed that parallel processes and isomorphism are replications in the unconscious that occur in the supervisory dyad due to difficulties that supervisors and supervisees encounter within the process and content of supervision. In any supervisory relationship, the supervisee brings affective, cognitive, and emotional baggage from the client to the supervisor and the supervisor brings affective and behavioral dynamics from supervision into the therapeutic dyad (Williams). Therefore, the supervisee and the supervisor are always influencing each other. These dynamics are isomorphic in that they are always reflected in all parts of the therapeutic system (Williams). There is an emphasis on growth, reflection, maturation, learning, relationships, goal setting, and empathy in supervision and therapy (Williams). Williams further outlined several actions that both supervisors and supervisees can undertake to identify, process, and utilize the isomorphic nature of supervision and therapy for the betterment of all participants in the therapeutic system. These actions include a) reflecting upon affective and emotional occurrences in the supervisory dyad, b) exploring similar and interconnected dynamics between the supervisory and therapeutic dyad, c) identifying each participant's role in the fostering of isomorphism, and d) modeling appropriate processing of isomorphic issues.

Getz and Protinsky (1994) posited that supervisees' family of origin plays a substantial isomorphic role in the way the supervisees experience the dynamics of

supervision. Getz and Protinsky used the construct of differentiation to define how a person's family of origin will affect the way that they will act and grow within a supervisory dyad. The authors define differentiation as a person's ability to perceive the difference between emotions and cognitions as it pertains to their overall functioning as a professional. Getz and Protinsky also believed that when people are well differentiated, they can think in an objective fashion when anxious in a therapeutic or supervisory dyad. In turn, a person who is poorly differentiated will experience anxiety followed by conflicts, distancing, and negative therapeutic and supervisory outcomes. Lastly, Getz and Protinsky stated that if a supervisee's family of origin is discussed and explored early in a supervisory relationship then the isomorphic occurrences within supervision can be readily mined for a better understanding of how supervisees' family life ultimately affect their professional practice and relationships with colleagues and clients.

Isomorphism plays a role in the behaviors associated with self-supervision (Lowe, 2000). Lowe said that self-supervision has many advantages including being more proactive and reflexive within the therapeutic dyad, enhancing therapeutic confidence, and costs, time, and convenience. Isomorphism also promotes a sense of autonomy to the therapist and can be perceived as entering a higher echelon of professionalism (Lowe). In regards to isomorphism, Lowe believed that the supervisors will function better when they use the same theoretical orientation in supervision as they do in therapy. This essentially means that a supervisor's practice of self-supervision will occur within the framework of their counseling based theoretical orientation.

Gentry (1986) postulated that the success of any supervision will always be a function of the isomorphic nature of a supervisor's counseling based theoretical orientation. A supervisor's counseling based theoretical orientation ultimately affects a) the way one views reality, b) positive therapeutic change, c) relationships within the therapeutic system, and d) the process and content of supervision (Gentry). A supervisor's counseling based theoretical orientation plays a role in how the supervisor a) gives feedback and reinforcement, b) how goals are set in all parts of the therapeutic system, c) relates to supervisees, d) conceptualizes cases, and e) views the nature of mental health diagnosis and treatment (Gentry). Gentry writes, "Supervision is likely to be effective when theory and practice are interrelated and students are more likely to learn theory when it is related to the specific problem in therapy" (p. 83-84).

Keller and Protinsky (1986) argued for an integrative approach to supervision. They wrote, "Supervision in psychotherapy generally lacks clear boundaries and theoretical structure" (p. 83). The authors posited that there are large discrepancies in regards to a) the use of supervision methodologies based on therapeutic models, b) the boundaries between supervision, therapy, and training, c) the roles and responsibilities that supervisors have towards both supervisees and clients, and d) criteria to be utilized in selecting supervision models (Keller & Protinsky). The authors believed that the overall lack of clarity in supervision can be addressed by using isomorphic models of therapy and training in supervision which lead to "more intelligent adaptation, growth, and expansion of various approaches to supervision" (p. 85).

Deveaux and Lubell (1994) used a family of origin approach to training future supervisors. The authors believed that supervisors are role models that supervise many dynamic areas of the therapeutic system including supervisee performance in therapy, supervisee influences in their professional practice, and the effectiveness of therapy on the client. Due to the inherent complexity of the work that supervisors do in all parts of the therapeutic system, the authors “assert that looking at supervisory training through an integrated lens and including an examination of the supervisor’s own family would further the differentiation of not only the supervisor but also the therapist as well” (p. 294). From the standpoint of isomorphism, Deveaux and Lubell thought that the more differentiated a supervisor is from their family or origin, the more likely they will be attuned to and perceiving of the replication of patterns across therapy and supervision. A well differentiated supervisor will also be able to promote differentiation within the supervisory dyad as well as the therapist-client relationship (Deveaux & Lubell).

Agazarian (1999) argued for a systems-centered approach to supervision that holds many isomorphic capacities between supervision, training, and therapy. The author argued that all phases of development in the therapeutic system are isomorphic to each other in an “energy-organizing, self-correcting, and goal-directed” (p. 215) fashion. There are seven primary isomorphic orientations in supervision according to Agazarian. Perspective helps supervisees perceive their own personal baggage that they bring to the supervisory dyad and helps “to identify their own internal conflict with their associated thoughts, values, emotional responses or impulses, and thus to reduce the likelihood that they will externalize their discomfort” (p. 218). Context essentially pertains to

diagnosing the skills or developmental level of supervisees so that the therapeutic work or supervisory intervention matches where they are in terms of professional development and detracts from possible regression or early transitions to further developmental levels. Conflict pertains to the ability of supervisors to intervene with supervisees regarding their intrapersonal or intrapsychic beliefs and schemas as a prerequisite for intervening in regards to interpersonal relationships with clients and all aspects of the therapeutic system. Interventions are aimed at restructuring, restoring, redirecting, and contextualizing supervisees' energies, emotions, thoughts, feelings, and relationships throughout the therapeutic system for the benefit of themselves, their supervisors, and the clients. Hypotheses are made through the lens of the dynamics of the therapeutic system to create interventions and predict the outcomes of interventions while taking development and conflict into consideration. Techniques such as hierarchy, structure, and functioning are used in practice to meet successful supervisory outcomes. Finally, outcomes are the final assessment of change in the therapeutic system based on the previous six orientations of systems-centered supervision. Agazarian wrote that the primary goal of systems-centered supervision, using the aforementioned seven orientations, is to assist supervisees in gaining insight into their own frames of reference so as to see the isomorphic nature of what is going on in their subsequent therapy practice and supervisory dyads.

In summation, past research regarding isomorphism and the content of supervision has shows that a) a supervisor's counseling theoretical orientation should be incorporated into the facilitation of supervision due to its inherent isomorphic nature, b)



there are many isomorphic behaviors and concepts between therapy and supervision, c) isomorphism plays a role in fostering self-supervision, and d) isomorphic contexts and occurrences in supervision should be processed by supervisors and supervisees. The next part of the literature review presents empirical research that tests the validity and utility of isomorphism within training and supervisory situations..

### **Isomorphism and the Empirical Research**

This section outlines the empirical research conducted on the construct of isomorphism. The definition and utilization of isomorphism as a concept within all domains of the therapeutic system needs to be clarified by using empirical research (Bernard and Goodyear, 2004). White and Russell (1997) attempted to give a conceptual understanding, validation, and operationalization to the construct of isomorphism. Sixty-one participants that had credentials as Approved Supervisors by the American Association for Marriage and Family Therapy and who had supervised at least one student during the past year were chosen to participate in the study. These participants were given an open-ended form that prompted them to list variables they felt were highly influential in counseling and supervisory dyads. A Delphi Studies model was used to isolate the variables seen as important to supervision. This brought the original number of generated variables ( $N = 771$ ) down to a set of variables that were used in the study ( $N = 455$ ). Results of the study showed that supervisors identified 332 isomorphic variables between supervision and therapy. Out of these 332 variables, the variables found to be most important isomorphs between supervision and therapy were the supervisor and the setting of supervision. The results of the study found that supervisees saw the behavior

of supervisors and therapists as similar and that contextual and setting variables are important to successful supervision. The authors also identified five core facets of isomorphism within supervision. These facets include a) identifying repetitive or similar patterns, b) translation of therapeutic models and principles into supervision, c) identical structure and process in supervision and therapy, d) isomorphism as an interventive procedure, and e) isomorphic role behavior in supervision and therapy (White & Russell).

Raichelson, Herron, Primavera, & Ramirez (1997) attempted to assess the amount of isomorphism and parallel processes that occurs in supervision from the viewpoint of supervisees. The researchers sectioned the supervisees into two groups for comparison according to if they were from a psychoanalytic or non-psychoanalytic supervisor. An instrument was constructed for the study and was called the Parallel Process Survey which measured in the incidence and effects of parallel process. Supervisors and supervisees who volunteered to participate in the study were asked to fill out the survey and a demographic questionnaire. A two-factor, fixed effects ANOVA was utilized to find significant differences between the non-psychoanalytic and psychoanalytic supervisors. An item by item analysis was conducted to find significant difference between the groups on individual items within the survey. Results of the study showed that the psychoanalytic supervisors reported greater awareness and knowledge of the existence of parallel processes than non-psychoanalytic supervisors. Psychoanalytic supervisors also believed that parallel processes were an important part of supervisory progress when compared to non-psychoanalytic supervisors. According to Raichelson et al., this finding shows that mental health professionals who were trained in environments

where psychoanalysis was not the primary theoretical orientation of choice may recognize certain processes in supervision but are not able to quantify exactly what the process is in supervision. Going further, Raichelson et al. wrote that isomorphism, which comes from the Marriage and Family therapy school of thought, focuses more on interrelational and contextual factors which may be a better fit for the philosophical foundations of non-psychoanalytic mental health professions such as mental health counseling and counselor education.

Ladany, Constantine, Miller, Erickson, and Muse-Burke (2000) examined one specific occurrence in supervision that leads to isomorphism in the dyad, supervisor countertransference. Eleven supervisors were chosen to participate in the study. A semi-structured interview was constructed after reviewing the supervisor countertransference literature. The interview questions were separated into 14 different sets of information gathering according to important aspects of supervisor countertransference that were found in the literature. The interviews were conducted, audiotapes of the interviews were transcribed, the data was coded into domains, abstract core ideas were found within the domains, the domains and core ideas were audited, cross-analyzed, and finally reviewed by the entire research team. Using the qualitative-based inquiry, the researchers found that supervisors believed the catalyst for their countertransference in supervision was the supervisee's interpersonal style and personality. Other themes found in the qualitative analysis included the supervisor's family and personal relationships, personality, competency, and past experiences in a supervisory dyad. Finally, environmental factors, boundaries, supervisor/supervisee conflict, communication, and supervisory process

interactions were found to foster supervisor countertransference towards a supervisee. The researchers then took the analysis a step further and identified specific affective, cognitive, and behavioral experiences that supervisors reported. Supervisors reported feeling distress, frustration, anger, irritation, anxiety, surprise, negative feelings toward the self, and confusion. Supervisors also reported questioning their supervisory competence, worrying about evaluation practices for the supervisee, and wanting to protect the intern. In terms of behavioral experiences, supervisors reported processing countertransference issues with the supervisee, becoming distant and avoidant in the dyad due to countertransference, and using the environment as a way to intervene about issues. The supervisor countertransference issues tended to occur on a continuum from creating conflicts and hurting the dyad in the beginning to strengthening it towards the end of the relationship (Ladany et al.).

Friedlander, Siegel, & Brenock (1989) researched the social and interpersonal influences of parallel processes and isomorphism within supervision. The researchers examined the theoretical model of parallel process by applying social psychological theories of self-presentation and interpersonal influence in an in-depth case study focusing on the development of therapeutic and supervisory relationships. Fourteen instruments were administered to a supervisor, a doctoral trainee, and a client. The researchers suggested that it is important to understand these constructs because “most conceptual models of supervision rely on extrapolations from counseling theory” (p. 149). It was found that when a client positively rated the therapist, the therapist, in turn, favorably assessed the supervisory experience. Evidence also showed that if a supervisor

operated from a more task-oriented theoretical orientation that it carried over into the supervisee's counseling. It was also found that most supervisees favored an interpersonal and empathic style of supervision to be more attractive and facilitative (Friedlander et al.).

As mentioned above, White and Russell (1997) conducted a study to give conceptual clarity to isomorphism and found several core facets of the construct: Identifying repetitive or similar patterns, translation of therapeutic models and principles into supervision, the structure and process of therapy and supervision are identical, isomorphism as an interventive stance, and individuals behave isomorphically in their roles as supervisor and therapist. White and Russell said, "Given that five facets of isomorphism have been identified, we believe it critical that the concept of isomorphism be empirically validated facet by facet" (p. 329). One of the facets, isomorphism as an interventive stance, was validated in a study by Frankel and Piercy (1990). In this study, the use of supervisory phone-ins was examined to see how they facilitated change in therapist behaviors as well as change in clients. The researchers were specifically looking at the isomorphic congruence between the supervisor who phoned in to the session and the therapist. Twelve supervisors, 42 trainees, and 84 clients participated in the study. Videotapes were made of family therapy sessions and audiotapes were made of supervisor phone-ins during live supervision of trainee sessions. The audiotapes and videotapes were then coded by trained and independent raters using an instrument called the Supervisor Behavior Coding System. The Client Resistance code was used to measure client in-session resistant behaviors. Results of the study found evidence to

support that when a supervisor successfully phoned into a therapy session to give positive support and teaching behaviors, the trainees were more likely to effectively support and teach their clients about the process and content of what was going on in the session. When the supervisor called into a counseling session to assist the trainee in providing more structure to the session, and did so using in a positive matter, the trainee had a greater ability to provide structure in the session. Frankel and Piercy write, “The results appeared to show that the effective use of supervisory support and teaching behaviors in phone-in interventions predicted change in parallel trainee behavior” (p. 419). This study empirically validated the facet of isomorphism as an interventive stance (White & Russell).

In summation, previous empirical research into isomorphism has a) given conceptual clarity to the construct, b) shown supervisees’ perceptions of isomorphism occurring in supervision, c) examined a catalyst to isomorphic content and process in supervision, supervisor countertransference, d) validated a facet of isomorphism as an interventive stance, and e) examined social and interpersonal influences of isomorphism in supervision..

### **Conclusions on the Isomorphism Literature**

Isomorphism is the phenomenon whereby the philosophy, structure, theory, models, processes, and content of therapy are “recursively replicated” in training and supervision (Liddle & Saba, 1983). The construct has been found to cause ambiguity and confusion in regards to the boundaries and roles between therapy, training, and supervision (ACES, 2003; Corey, Corey, & Callanan, 2003; Liddle, 1991; Remley &

Herlihy, 2004; Tyler & Tyler, 1994; White & Russell, 1997). Isomorphism is a construct that is highly similar to parallel process (Bernard & Goodyear, 2004), but parallel process has its roots in the psychoanalytic school of thought due to a focus on unconscious processes and recapitulations, transference, and countertransference (Ekstein & Wallerstein, 1972; Frawley-O'Dea & Sarnat, 2001; Friedlander et al., 1989; Russell et al., 1984; Schneider, 1992) whereas isomorphism focuses on interrelational and structural aspects of supervision due to coming from the structural and strategic family school of thought (Bernard & Goodyear; Haley, 1976). Isomorphism greatly affects the supervisory and training environment (Anderson et al., 1995; Botelho et al., 1991; Heath, 1982; Lee, 1997; Liddle, 1982; Liddle & Schwartz, 1983; Liddle et al., 1984; Liddle & Saba, 1985; Liddle, 1986; Liddle, 1991; Moorhouse & Carr, 2001; Weir, 2009), encompasses the replication of processes between counseling and supervision (Behan, 2003; Boyd, 2007; Burnham, 2010; Edwards & Chen, 1999; Lee, 1999; Liddle & Saba, 1983; Roberts et al., 1999; Rothberg, 1997; Sand-Pringle et al., 1995; Schneider, 1992; Thomas, 1994), pertains to individual content isomorphs between counseling and supervision (Agazarian, 1999; Deveaux & Lubell, 1994; Gentry, 1986; Getz & Protinsky, 1994; Keller & Protinsky, 1986; Lowe, 2000; Williams, 1997), and has been shown to exist in supervisory dyads in numerous empirical studies (Frankel & Piercy, 1990; Friedlander et al., 1989; Ladany et al., 2000; Raichelson et al., 1997; White & Russell, 1997).

## **Introduction to Survey Research**

Lounsbury, Gibson, & Saudargas (2005) posited that scale development is often a necessary and integral part of answering specific and unique research questions in the social sciences. The authors believe that there are six primary reasons for developing scales including a) updating scales that have become obsolete in terms of language and concepts, b) revising existing scales using more empirically sound psychometric analyses, c) developing truncated versions of existing scales, d) contextualizing scales measuring general topics towards specific subgroups of a given population, e) improving the validity of an existing scale by using more relevant content, and f) fulfilling a specific research purpose (Lounsbury et al.). Going further, Lounsbury et al. wrote, “Most scales are developed as research tools to measure a construct reliably so that validity relationships can be tested within a theoretical framework” (p. 126). Colton and Covert (2007) wrote that survey research is one of the most utilized methods of research and allows for easy data collection in gathering knowledge, attitudes, and behaviors of populations.

## **Categorization, Considerations, and Structure of Surveys**

This section outlines the many ways that surveys can be categorized and structured as well as certain issues that survey researchers must take into consideration in their studies. Colton and Covert (2007) defined an instrument as “a mechanism for measuring phenomena, which is used to gather and record information for assessment, decision making, and ultimately understanding” (p. 5). Instruments can be categorized in many different ways (Colton & Covert). For example, the modes of administration of an



instrument include self-report where respondents directly answer questions in an instrument and observation where information about respondents is acquired by a third party. In other instances, external observers may be called in to gather information about things or entities rather than individuals. Self-report modalities have the advantages of time and efficiency in regards to data collection but the disadvantages of restricting information, social desirability, and respondent biases. Observation methodologies have the advantages of qualitative richness of the data, gathering data in the natural environment, and limited social desirability but the disadvantages of less efficiency and longer data analysis time frames (Colton & Covert).

Instruments can also be categorized according to their subsequent use or purpose (Colton & Covert, 2007). Perhaps the most popular and utilized form of instrumentation is a test. Worthen and Sanders (1987) defined a test as a series of questions or items that measure some educational or psychological attribute. Respondents are given a series of questions and are expected to give correct responses to questions or perform at a certain level whereby respondents present with mastery of the attribute. Rating scales are instruments that evaluate respondents' subjective judgments about a phenomenon along an ordered continuum as well as to assess performance (Aiken, 1975). Performance rating instruments are similar to rating scales in that external observers rate an individual's ability to successfully complete job tasks (Colton & Covert). Checklists are instruments used to determine the frequency or prevalence with which attributes are present in a population of interest (Whiston, 2005). These types of instruments are also used in performance assessment to make sure that a sequential list of tasks are performed

and completed. Inventories are used in the social sciences to determine individual interests, characteristics, or skills (Neukrug & Fawcett, 2009). And finally, psychometric instruments are instruments geared towards assessing cognitive, affective, emotional, vocational, and personality functioning (Colton & Covert).

With so many different types of instruments to choose from, there are certain considerations in regards to selecting and using the correct type of survey in a given situation (Colton & Covert, 2007). Surveys can be used to a) explore relationships, b) examine attitudes and beliefs, c) obtain sensitive information, d) strengthen other data collection efforts, e) alleviate time and cost constraints, and f) gather data from large samples of people (Colton & Covert). However, there are some caveats associated with survey research including limiting data acquisition and misinterpreting the results of surveys (Colton & Covert). Researchers must take the purpose of the study into consideration when choosing or creating surveys. A survey must be chosen or created that can collect meaningful data that can answer subsequent research questions. The research design also must be considered because it will drive the way information is gathered, random selection and assignment, what types of questions or items will be presented in the survey, and what types of potential observations are for the study (Colton & Covert). The object of measurement, which is who or what is the focus of the survey, needs to be taken into consideration because it drives the formulation of data-gathering strategies as well as structure and language of the survey (Colton & Covert). Lastly, the data collection methodology and resources for the survey need to be examined to ensure

that the data being collected is relevant and purposeful for answering the survey research question and that it is feasible as a means for collecting data (Colton & Covert).

There are six primary parts of any survey or instrument (Colton & Covert, 2007). The title is placed at the center of the first page of a survey and should present the general purpose of the survey in a concise and easily understandable manner. Next, the introduction is used to explain the reasons for creating the instrument, the type of data that the survey is focused on generating, how long it will take to complete the instrument, explain any incentive given for participation, and how the data will be utilized, stored, and managed. Often times, an informed consent form can be utilized as a proxy for an introductory statement. Third, a clear and thorough set of instructions should be written and presented at the beginning of the survey. These instructions should give a respondent guidance and relevant tips for completing each part of the survey and how to respond to subsequent questions. There should be instructions for the survey as a whole and for subsections if those exist. Fourth, the actual items or questions are presented with their respective response choices. All items should have a stem and a response set from which the respondents can make a choice. Fifth, a series of demographic questions can be asked to respondents. One should not have spurious demographic questions and should only ask demographic questions that are relevant towards the study. Lastly, a closing section where respondents are thanked for their time and effort in completing the study and any instructions or information regarding debriefing or contacts is provided at the end of the survey (Colton & Covert).

There are five primary modes of administration in regards to survey research (Colton & Covert, 2007). These modalities include postal mail, group face to face, telephone, one on one interview, and internet or email. Postal mail administration entails mailing the survey directly to potential respondents' home addresses. The primary advantages of this model of administration are that the respondents have something tangible to interact with in person and they can take the survey at their leisure and time. This mode of administration also has the advantage of being able to mail incentives directly to respondents. Disadvantages include the expense of mailing out large numbers of surveys, the amount of time it takes for respondents to fill out the surveys and mail them back to researchers, and people being mobile and changing addresses. The group administration mode where a survey is administered to a small or large group at the same time has several advantages including an immediate response rate, the ability to clarify respondent concerns and answer questions, and ensuring that only the population of interest is filling out the survey. The primary disadvantage of this model of administration is the potential for social desirability to occur as a result of respondents taking the instrument amongst peers. Next, telephone surveys are conducted over the telephone. It is very important to keep the questions short and to the point in a telephone survey because participants can get confused or bored if the survey becomes too tedious to complete over the phone. The interviewer must be trained to give the survey in a standardized format and be personable, well-spoken, and professional over the telephone. The primary disadvantage of this type of administration is that often times people will not answer calls from unknown numbers and will not want to stay on the phone to answer

survey questions. The next mode of administration is the one on one interview. This is an actual person-to-person interview that takes place in a private environment where the researcher administers the survey orally and records a respondent's choices on items. The primary advantage of this type of administration is that the researcher gets to build rapport with the participant which can yield a better completion rate and richer data. The disadvantages of this approach are that it is often a slow process and that the qualitative analysis of data can take months and much more effort than quantitative analyses. The final mode of administration is internet or email surveys. The survey is administered electronically via a web address or an email. The biggest advantage of this mode of administration is that researchers are able to sample from a large body of participants and it is efficient in terms of costs and time. The primary disadvantages are that some people do not have access to computers and the internet and the surveys can be sent to individuals outside of the population of interest (Colton & Covert).

In summation, there are many different ways to categorize instruments or surveys and many concerns associated with choosing the right kind of instrument to answer survey research questions. Instruments are categorized by their mode of administration, use or purpose, object of measurement, methodology, and data collection. There are six primary parts to any instrument including title, introduction, instructions, items, demographics, and a closing section. Researchers must choose the right type of instrument to answer their research questions and must take each of the aforementioned categorizations into consideration.

## **The Eight Steps of Creating a Survey**

There are eight steps to constructing and validating an instrument (Colton & Covert, 2007). The first step is to identify the purpose and focus of the study. This important first step helps the researcher to a) clarify the reasons from creating the survey, b) identify the types of information needed to answer subsequent research questions, c) choose a methodology and type of instrument to be utilized, and d) begin the process of writing survey items. It is important at this first step to conduct a thorough and purposeful literature review related to the construct of interest as well as to seek out other measures or instruments that are similar to the construct of interest (Colton & Covert). The second step is to obtain feedback from stakeholders in order to clarify the purpose and focus of the survey. Often times, a researcher will draft a purpose statement during step one that outlines the proposed purpose of a survey along with the proposed methodology, type of instrument, a few sample items, and a brief synopsis of the literature review and current instruments. This statement is given over to experts and stakeholders for analysis, evaluation, and feedback regarding the purpose of the survey. The experts are professionals within the field of inquiry that the survey is focused in and stakeholders are potential respondents or populations that the potential survey will gather data from in the future. The third step is to identify the research methodology and the type of instrument that will be used for data collection. This is the step where a researcher has to choose if the construct of interest can best be measured using either a self-report or observational method and also what type of instrument has the most utility for the study. Step four is where the researcher begins to formulate the actual questions

or items for the survey. There are many ways to write and create survey items which will be covered later in this section of the literature review. The items are not formatted at this point, they are just simply written out in a very raw form for step five. Step five is where the items are pretested by experts in the field of inquiry and individuals from the population of interest. The researcher uses this step as a last benchmark before actually piloting the survey. In step six, the researcher revises the instrument based on the feedback received by experts and by individuals from the population of interest. It is at this point that the researcher will structure and format the items as well as the survey itself in a manner that is professional and readily presentable to potential respondents. Step seven is the pilot test of the survey where the instrument is given to the population of interest, revised on the feedback they give, and also some preliminary psychometric analyses are conducted on the data. Cronbach's alpha and an exploratory factor analysis are run on the survey data to create the final instrument. The eighth and final step is to administer the final instrument along with theoretically or conceptually similar established measures to both generate final reliability and validity coefficients as well as data related to the construct of interest (Colton & Covert). The eight steps are presented in Figure 2 in Appendix K.

In summation, there are eight stages identified in the literature that must be passed in order to empirically validate a new instrument or survey. These steps in order are a) identify the purpose and focus on the instrument, b) obtain feedback from stakeholders regarding the instrument, c) identify the research methodology and type of instrument to be used, d) formulate instrument items and questions, e) pretest the items with experts in

the field and obtain feedback, f) use the feedback and pretesting results to revise the instrument, g) pilot the instrument with the population of interest and conduct initial reliability and factor analyses, and f) validate the instrument with similar measures to generate final reliability and validity coefficients.

### **Writing Survey Items**

This section outlines the previous research related to writing survey items. Lounsbury et al. (2005) suggested a process of developing a scale that can be used to answer specific and unique research purposes. The first step in developing a reliable and valid scale is to write a construct specification. Defining a construct is of paramount importance because a researcher is better able to write items that are relevant to the construct and represent the full spectrum of the content pertaining to said construct.

Next, a series of items that are derived from the previous literature are written to cover the content base of the construct. It is important to write these items in general terms while not being too specific or write items where disagreement can be interpreted in several ways. With a broad construct such as isomorphism, it is important to have more items in the scale to try and account for as much of the content domain as possible (Lounsbury et al., 2005). One can write items in the form of statements related to the construct, in a contextual and situational manner pertinent to the construct, to gain the affective orientation regarding the construct, or to understand the frequency and duration of the construct's occurrence in the natural environment.

Going further, Lounsbury et al. (2005) offered several suggestions for writing items. These include writing items that deal with one concept and that are not double-



loaded, using language that can be understood by the population of interest, writing items that will ensure variance amongst responders, and writing equal numbers of negatively and positively worded items to reduce response bias. In regards to the number of items to be written for a scale, the authors suggested that one should write well-informed items, have a strong competence in regards to the construct of interest, write twice as many items as one thinks will be needed to measure the construct, and keep the time to administer the scale as short as possible. Finally, it is recommended to use a five-point Likert scale with codings ranging from 1 to 5, with 1 meaning “strongly disagree,” 2 meaning “disagree,” 3 meaning “neutral,” 4 meaning “agree,” and 5 meaning “strongly agree.” They believed that items should take the form of statements and should take into account different situations where the construct of interest is experienced or expressed. Another way to generate items is to consider the perception or meaning of the construct for people or the attitude people have towards the type of behavior associated with the construct. It is also a good idea to write items related to the frequency and duration of occurrence associated with the construct. Going further, the authors believed that researchers should a) write items should deal with one idea or concept, b) use language that all respondents understand has a common meaning, c) not write items that will yield low levels of variance in responses, and d) write some negatively worded items (Lounsbury et al.). The authors suggested that the number of items to be written for a survey depends upon how well the items are written, how well the researcher knows the construct, and the breadth of the construct in question (Lounsbury et al.).

Colton and Covert (2007) also give several strategies for writing good survey items. They suggest using simple language and readability in writing items and to consider the nature of the population that one is gathering information from when writing items. They also suggest a) using appropriate sentence lengths, b) clear and specific terminology, c) defining everything including constructs and other words that could be misunderstood, d) having only one concept per item (no “double or triple barreling”), e) giving good instructions for questions, f) using relevant response categories, g) writing culturally appropriate questions, h) writing sensitive items in a respectful and professional manner, i) avoiding biasing questions by writing them in an overly positive or negative fashion, j) using the same tense in all of the questions, k) using indirect wording in questions to elicit a range of responses, and l) only include items that address the construct and ultimately the research question (Colton & Covert).

Colton and Covert (2007) also give suggestions for the writing of selection items and response sets with rating scales. As noted earlier, the stem is the first part of a survey question that acts as a stimulus in eliciting a response from a respondent and the response set is a set of categories that a respondent chooses from when answering a question. The authors give several suggestions for writing rating scale items including a) writing unidimensional stems and response sets that focus on one specific aspect or part of a construct per question, b) having a logical flow between the response set and the stem, c) giving directions and examples of how to respond to stems using response sets, d) using appropriate language that the population of interest will be able to understand, e) making the response set scale format easily understood, f) avoiding biased response sets that can

skew results or lead the respondent to answer in a certain manner, g) assigning numerical values to response set choices, h) including “not applicable” or “I don’t know” as potential responses within response sets, i) using an odd number of response categories in response sets, and j) giving respondents a neutral choice in all response sets (Colton & Covert).

There are several different types of response sets that can be used within survey research (Colton & Covert, 2007). Ratings scales are the most popular and utilized form of response sets in survey research and often come in the form of Likert, numeric, or graphic scale sets. There is also a “check all that apply” response set where respondents have the opportunity to choose several different responses for the same question. This type of response set often yield more accurate information regarding a construct but the very nature of having several different answers to a question does not lend itself well to statistical and descriptive analysis. There are also dichotomous and rank-ordered response sets. Dichotomous response sets are also known as forced choice items where a respondent is only given a choice between “yes” or “no” for a given question. Rank-ordered response sets allow for respondents to rank their preferences of categories from first until last. Fink (1995) believed that there were five primary types of response set categories. These include endorsement or agreement, frequency, intensity, influence, and comparison. Endorsement or agreement has respondents rate their beliefs about an item along a continuum from false to true or from strongly disagree to strongly agree. Frequency response sets have ratings from never to always. Intensity is a form of response set often used in the medical fields and has ratings from none to severe.

Influence response sets have ratings from no problem to big problem. Finally, comparison response sets allow for respondents to rate their feelings or behaviors in comparison to their peers or population (Fink). Other commonly used response sets include acceptability, approval, opposition, appropriateness, awareness, beliefs, concern, extent, familiarity, importance, development, performance, likelihood, priority, probability, quality, and satisfaction (Colton & Covert).

In summation, writing sound items is an integral part of any survey research project. Past research has shown that it is important to write a construct specification, account for and represent the entire content domain of a construct, know the construct well by reading the past literature, and write items that deal with one idea or concept related to a construct of interest. It is also important to use appropriate language, write no double-barreled questions, write items that will ensure variance amongst potential respondents, use a five-point Likert scale response format, consider the nature of the population, and ensure that there is a logical flow between item stems and response sets.

### **Sampling and Survey Research**

This section outlines sampling methodologies and other subsequent sampling issues in survey research. Colton and Covert (2007) wrote that there are two primary goals that survey researchers must strive for in any survey research project: An unbiased sample and a large enough sample to make empirically valid inferences back to the population of interest. There are certain sampling caveats that researchers must account for in sampling from populations. Undercoverage in sampling is when a certain subset of the population of interest is not represented at a congruent level in the sample.

Nonresponse bias is the phenomenon where those who do not respond to certain items or surveys are different from those who do respond to certain items or surveys. Volunteer bias is where individuals that take a survey are significantly different from those that do not take a survey. The purpose of any sample is to make generalizations and inferences back to a population of interest (Hood & Johnson, 2007). Generalization pertains to the applicability of findings from a given sample in representing the population from which the sample was derived (Neukrug & Fawcett, 2009). There are two primary issues concerning the generalization of findings in regards to a sample. The first is sampling error where chance variations and anomalies adversely affect a sample's ability to generalize back to a population. The second is sampling bias where the sampling procedure used by a researcher allows for certain subsets or characteristics of a population to be overrepresented in a sample (Colton & Covert). All of the aforementioned sampling issues must be taken into consideration when sampling in a survey research project.

There are several different types of sampling methodologies that can be used within survey research and all fall within one of two categories: Probability sampling or nonprobability sampling (Whiston, 2005). The essential difference between the two categories and the sampling methodologies that exist within each is the use of some sort of random selection from the population in all probability sampling methodologies (Colton & Covert, 2007). Random selection gives every member of a given population an equal chance of being chosen for a sample (Neukrug & Fawcett, 2009). Simple random sampling is a probability sampling methodology where every individual in a

given population has an equal chance of being selected for a sample (Colton & Covert). It is essential with this type of sampling that the researcher has access to every member of a population for sampling purposes. Often times, a random number generator is used for purposes of selecting members from a population. The primary issue that researchers face when using this methodology is finding access to an entire population because there are high costs and long periods of time spent gaining access. Stratified random sampling is a derivative of simple random sampling in that a population is divided up into homogenous subgroups based on a relevant characteristic and then random selection is facilitated from each subgroup (Colton & Covert). This sampling method can ensure that good generalizations come out of a sample because a researcher can focus on important strata and subgroups within a given population. Nonprobability sampling methodologies cannot account for the entirety of a given population and researchers do not know the actual probability of individuals to be selected into a sample (Colton & Covert). These types of samples lack the key aspect of generalizability in research studies. Purposive sampling is a nonprobability methodology where the most important individuals or subgroups of interest related to a given research topic are sampled. This type of methodology has utility when a sample needs to be taken quickly and where undercoverage, nonresponse bias, volunteer bias, and sampling bias are not primary concerns (Colton & Covert). Other types of purposive sampling include expert sampling where only experts on a given subject are sampled, snowball sampling where participants are asked about other people with the similar characteristics so that they could be sampled, and quota sampling where the number of participants needed for a sample

depends strictly on a predetermined benchmark (Whiston). The last type of sampling is convenience sampling which takes no random selection or biases into consideration and a researcher just samples those that can be accessed and no other considerations are present (Colton & Covert).

Lounsbury et al. (2005) wrote that it is preferable to administer a survey to the people for whom the survey will eventually be used. The authors stressed to avoid double-dipping when it comes to the sampling in survey research. This means to use an entirely different sample for both the reliability and the validity parts of survey creation. This is because “doing everything based on a single sample would greatly capitalize on error variance and lead to unreliable results. After you have achieved satisfactory reliability for your scale, use a new sample to evaluate the validity of the scale” (p. 134). The authors recommended that the scale should be given to five times as many people as there are items in the scale. For example, if you have 50 items in a given instrument, it should be given to at least 250 people for validation purposes. It is important to have a large enough sample size because the results yielded from the analyses will be robust enough to generalize to all members of a given population.

In summation, sampling in survey research is of paramount importance when it comes to making valid generalizations back to a given population based on the results of an instrument. Researchers should take steps to ensure that undercoverage, nonresponse, volunteer, and sampling biases and errors do not skew the results of a study. Also, researchers must choose between probability and non-probability sampling methodologies in order to make the best generalizations back to populations. Instruments

should always be given to the population of interest when establishing reliability and validity with no double-dipping and instruments should be given to at least five times as many participants as there are items in the instrument.

### **Conclusions on Survey Research**

Survey research is a methodology often employed in social science research and is often used to operationalize and validate new constructs of interest (Colton & Covert, 2007; Lounsbury et al., 2005). Surveys can be categorized in a number of ways including mode of administration, uses or purposes, and the type of data they generate (Colton & Covert). Every survey has six primary parts: Title, introduction, instructions, items, demographics, and closing statement (Colton & Covert). There are eight primary steps to constructing and validating a survey: Identify the purpose and focus of the study, obtain feedback from stakeholders, identify a research methodology, formulate items, pretest the items, revise the items based on feedback, pilot test the survey, and validate the survey (Colton & Covert). There are many considerations that should be taken into account when writing items including content, response sets, populations, and construct specifications (Lounsbury et al.). As with any research project, survey research projects necessitate a representative sample that can make valid inferences back to a given population (Hood & Johnson, 2007).

### **Introduction to Psychometrics**

Psychometrics is the scientific process behind the evaluation of attributes of psychological tests (Furr & Bacharach, 2008). Cronbach (1960) defined psychological tests as “a systematic procedure for comparing the behavior of two or more people” (p.



21). All psychological tests have a general purpose of a) taking samples of human behaviors, b) collecting the samples in an empirically sound and systematic fashion, and c) comparing behaviors of two or more individuals (Furr & Bacharach). Psychological tests must also be able to compare behaviors from different types of people or people's behavior at different points of time (Furr & Bacharach). Psychometrics focus on particular attributes of psychological tests including a) the data generated by administering a test, b) the reliability or consistency of test results, and c) the validity of the data and subsequent results from tests (Furr & Bacharach).

### **Reliability**

This section outlines the psychometric construct of reliability within survey research. Reliability is a concept derived from classical test theory (CTT), which is a measurement theory that serves as the foundation for establishing the reliability of various psychological and educational measures (Magnusson, 1967). Classical test theory stipulates that the observed score of any given measure or instrument is a function of the true score plus measurement error. This function forms a basis for understanding the foundational aspects of reliability. Furr and Bacharach (2008) defined reliability as “the extent to which the differences in respondents’ test scores are a function of their true psychological differences, as opposed to measurement error” (p. 82). There are three critical aspects of reliability that are used to calculate reliability coefficients: observed scores, true scores, and measurement error. Observed scores are the scores obtained from giving a measure or instrument to a person. True scores are the actual and real scores of a given measure or instrument that actually exist within a person. Measurement error

consists of phenomena that cause differences in observed and true scores. An inherent and primary assumption underlying the concept of measurement error is that error in any given measure or instrument is random (Furr & Bacharach). Because error is thought to affect scores in a random manner, the artificial inflation or deflation of observed scores caused by error is thought to be completely independent of a given person's true score (Furr & Bachrach). When calculating any measure of reliability for a given measure or instrument, it is imperative to estimate the extent to which measurement error causes differences in observed scores as well as take into consideration the extent to which observed scores correlate with true scores (Furr & Bacharach).

A reliability coefficient also plays an important role in determining how much measurement error affects the accuracy of observed scores derived from tests and research studies (Furr & Bacharach, 2008). The standard error of measurement is an important concept within measurement theory and it yields the average size of error associated with any given observed score (Furr & Bacharach). As reliability coefficients for a given measure or instrument increase, the standard error of measurement for the measure or instrument will decrease because stronger reliability denotes less measurement error and therefore more accurate results (Hood & Johnson, 2007).

Internal consistency reliability is an approach towards establishing reliability that focuses on how different items of a test correlate with each other as well as the actual length of a given measure or instrument (Furr & Bachrach, 2008). Internal consistency is based on the premise that a given measure or instrument measures only one construct and that individual items are geared towards measuring the construct of interest and thus are

intercorrelated at some level (Lounsbury et al., 2005). Internal consistency measures of reliability are the most often utilized form of establishing reliability in the social sciences, especially Cronbach's alpha (Whiston, 2005).

Cronbach's coefficient alpha (Cronbach & Shavelson, 2004) is a measure of internal consistency reliability that ranges from 0 to 1.0 with higher scores denoting stronger internal consistency. It is suggested in the literature that the minimum acceptable alpha coefficient for a reliable test is .75 (Lounsbury et al., 2005). Coefficient alpha is considered an "item-level" approach to reliability because the correlations amongst individual items in a given measure or survey provide the basis for estimating reliability (Furr & Bacharach, 2008). All "item-level" reliability analyses have two steps. First, "item-level" statistics such as correlations between individual items are calculated and then in the second step, these correlations are entered into a specialized equation that yields the internal consistency measure of reliability (Furr & Bacharach).

In summation, reliability in survey research pertains to the consistency of scores derived from measures of a given construct. Reliability is a construct that comes from Classical Test Theory which postulates that any observed score on a given measure is a function of a participant's true score plus error. Researchers calculate reliability coefficients to assess the accuracy of observed scores and the effects of measurement error within tests. Internal consistency measures of reliability focus on the correlations between individual items and other items, the length of a given instrument, and a given instrument measuring one specific construct. Cronbach's alpha is the most widely used internal consistency measure of reliability in the social sciences.

## **Factor Analysis**

This section outlines the statistical technique called factor analysis that is often used in survey research. Factor analysis is a method of data reduction or simplification of intercorrelated measures to a construct (Ho, 2006). When using factor analysis, a researcher makes an assumption that some the measures or variables are correlated in some manner and due to this, there should be some sort of latent or underlying relationship between the measures or variables. The primary outcome from a factor analysis is the identification of these underlying relationships amongst a set of variables or measures as independent factors that have high intercorrelations (Ho). There are three steps for conducting a factor analysis: Computation of the correlation matrix for all variables, extraction of initial factors, and rotation of the extracted factors to a terminal solution (Ho). The first step is essentially generating the correlations between each measure or variable as a matrix containing the coefficients or intercorrelations. In the second step, the number of latent or underlying associations, or factors, is derived from the correlation matrix. The researcher has to make a decision on the method of extraction of the factors as well as the appropriate number of factors to derive in order to effectively represent the construct of interest. The Principal Components method of extraction is used in survey research because researchers want to reduce the data or factors of a survey in order to represent a given construct of interest (Ho). In terms of choosing the number of factors to extract to represent the construct, researchers use two primary statistical techniques: Eigenvalues and scree tests. Eigenvalues are the ratios between the shared variance and unique variance explained by a given factor extracted from a dataset. An

eigenvalue of 1.0 or greater is the most commonly accepted criterion for extracting a factor because the amount of shared variance explained by a given factor should at least be equal to the amount of unique variance explained by the factor (Ho). The second methodology is a scree test which is a figure of eigenvalues plotted against the order and number of factors extracted from a dataset. Because the first factors extracted from a dataset tend to have larger eigenvalues and later factors have smaller eigenvalues, there will be a steep downward slope followed by a “plateau” with the smaller factors. The point where the “plateau” begins is a marker indicating the number of factors to be extracted from a dataset (Ho). One thing inherent in factor analysis is that subsequent factors are at times hard to interpret because some measures or variables may load on several different factors due to high correlations with many other measures or variables in a dataset. A rotation of extracted factors strengthens the ability to interpret factors by forcing each variable to load on only one factor, at the expense of being able to account for the amount of shared variance accounted for by each subsequent factor (Ho). Ho wrote that the most utilized form of rotation is the varimax methodology because it gives the clearest delineation between factors by “producing the maximum possible simplification of the factors within the factor matrix” (p. 206). As for interpreting the factors, it is a general rule that any correlation between the variable and the factor, or factor loading, should be at least .3 or higher (Ho). The grouping of variables that have high factor loadings denote the underlying nature of that subsequent factor. There are several statistical and conceptual assumptions in regards to conducting a factor analysis (Ho). First, it is important to have larger sample sizes in order to be able to clearly

identify the factors of a given dataset. Second, there has to be normality and linearity in the dataset because correlations provide the mathematical context to factor analysis and violations of these assumptions can contaminate and artificially inflate subsequent factor loadings. There also has to be sufficiently high correlations amongst a given set of variables in order to conduct the extraction of factors. Fourth, a researcher must select variables that have some sort of theoretical or conceptual linkage because factor analysis depends upon correlations to select variables to make up a factor. Lastly, the sample of participants must be homogenous in order to find the underlying factor structure of a given measure or construct (Ho). Exploratory factor analyses are often used concurrently with reliability analyses to ensure that the underlying content of a given instrument can be interpreted in a consistent and interpretable manner (Lounsbury et al., 2005).

In summation, factor analysis is a statistical technique utilized in survey research to reduce data and simplify the process of understanding the underlying nature and structure of an instrument. Researchers must compute a correlation matrix, extract factors in a principal components fashion, use eigenvalues and scree plots to identify factors, and then use a varimax rotation to interpret the subsequent factors. Researchers must strive for a large sample size that is homogenous, meet the assumptions of normality and linearity, have strong relationships amongst variables of interest, and use some sort of theoretical or conceptual knowledge to select variables. Factor analysis is often used in survey research concurrently with reliability analyses.

## **Validity**

This section outlines the psychometric construct of validity as it pertains to survey research. Validity is defined as “the degree to which evidence and theory support the interpretations of test scores entailed by the proposed uses” of a test (AERA, APA, & NCME, 1999, p. 9). Three primary concerns when establishing the validity of a given measure or instrument are a) the interpretation of scores, b) the utility of the scores within a give context, and c) the interpretation and utility of scores are grounded in empirical evidence and theory (Furr & Bacharach, 2008). Construct validity is the most important aspect of validity and can be defined as the extent to which scores yielded from a given measure or instrument can be interpreted and utilized in describing or measuring a psychological construct (Messick, 1989). The American Education Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME) have proclaimed that there are five types of empirical evidence that can establish the validity of a given measure or instrument in regards to interpretation and utility. These five types include a) test content, b) internal structure of a test, c) psychological process used in test responses, d) the association among test scores and other variables, and e) the consequences of test use (AERA, APA, & NCME).

In regards to test content, otherwise known as content validity, a given measure or instrument can be interpreted only if the content of the test effectively reflects the important aspects of the psychological construct being measured (Whiston, 2005). There are two specific threats to content validity: Construct-irrelevant content and construct

underrepresentation (Furr & Bacharach, 2008). Construct-irrelevant content is content that is spurious and unrelated to the construct of interest which lessens interpretive capabilities of the measure or instrument and thus lowers its validity. Construct underrepresentation is a phenomenon whereby the content in the measure or instrument does not cover the entire spectrum of content relevant to a psychological construct. Test developers must take these threats into consideration when creating a measure or instrument.

The validity of an instrument's internal structure pertains to the way that different items or parts of a test relate to each other (Furr & Bacharach, 2008). The structure of a given measure or instrument should match the underlying structure of a construct of interest (Neukrug & Fawcett, 2009). A statistical technique called factor analysis is employed to validate an instrument's internal structure (Hood & Johnson, 2007). Factor analysis allows researchers to identify underlying dimensions or factors within a given measure or instrument by a) clarifying the number of factors that exist within a measure or instrument, b) revealing the relationships between factors of a measure or instrument, and c) linking individual items in a measure or instrument to specific factors (Furr & Bacharach).

Another important consideration when establishing the validity of a measure or instrument is the psychological processes that participants utilize to complete test items and respond to stimuli associated with the measure or instrument (Colton & Covert, 2007). The clarity of test instructions, the writing and reading level of respondents, and the structure of test items and respondent categories must be analyzed to ensure that the



cognitive processes of participants are not skewed or controlled in any sort of manner when responding to items or stimuli within a measure or instrument (Furr & Bacharach).

The fourth type of validity evidence, associations with other variables, focuses on the theoretical, conceptual, nomological, and empirical associations that are expected between constructs, measures, instruments, and tests (Whiston, 2005). When there is a significant correlation between a given measure or instrument and another instrument measuring a construct that is theoretically or conceptually linked, then one can make an evidence-based argument related to the validity and interpretability of a measure's or instrument's scores (Lounsbury et al., 2005). Convergent validity is the level with which a given measure or instrument positively correlates with tests measuring for theoretically or conceptually similar constructs (Furr & Bacharach, 2008). Discriminant validity is the level with which a given measure or instrument negatively correlates with tests measuring for theoretically or conceptually different constructs (Lounsbury et al.). Concurrent validity pertains to the ability of an instrument to correlate with other relevant measures at the same time as well as the ability of an instrument to differentiate between groups of individuals (Colten & Covert, 2008). Predictive validity is the extent to which a given measure or instrument can predict for a construct sometime in the future (Neukrug & Fawcett, 2009). Incremental validity establishes the level with which a given measure or instrument contributes shared variance to the prediction of another construct beyond other measures that have already been validated and tested (Lounsbury et al.).

The last type of validity evidence, consequences of testing, is primarily focused on intended and unintended benefits or consequences of taking a given measure or instrument, having the results interpreted, and how the results are used (Furr & Bacharach, 2008). This “consequential validity” has been highly debated and researchers feel that biases and opinions are too subjective in regards to true scientific test creation. Consequential validity deals with the potential of tests to be used in an unfair or adverse manner against some groups of people (Furr & Bacharach). Testing for significant differences between groups that are disenfranchised, minority, lower socioeconomic status, non-English speaking, or foreign can help generate this type of validity coefficient (Whiston, 2005).

In summation, validity is a concept focused on proving that scores from a given instrument are interpretable, are grounded in theory and empiricism, and have utility in certain contexts. In order to prove the validity of an instrument, the content of the instrument has to accurately represent the content of the construct of interest, the internal structure of the instrument should reflect the internal structure of the construct of interest, the psychological processes that respondents use to answer items should be relevant and salient to all members of the population of interest, the instrument should be theoretically and conceptually linked to related and relevant constructs, and the scores and interpretations of the instrument should be used in a manner conducive to fairness to all subsections of a given population.

## **Conclusions on Psychometrics**

Psychometrics is the scientific evaluation of the attributes of psychological tests, especially in regards to the data, reliability, and validity of tests given to human beings (Furr & Bacharach, 2008). The reliability of a test pertains to the differences between observed scores and true scores as function of measurement error and gives a sense of the consistency with which a test measures a construct (Furr & Bacharach). The most widely used method of calculating reliability is Cronbach's alpha (Cronbach & Shavelson, 2004) which is an internal consistency measure of reliability. Factor analysis is a statistical technique focused on data reduction and simplification to find the underlying and latent factors that exist in psychological tests (Ho, 2006). Through the use of correlation matrices, principal components extraction methodologies, and rotations, researchers are able to find the underlying characteristics of psychological tests. Validity is the empirical evidence and support needed by researchers and professional in order to interpret and utilize the results of psychological tests. Particularly important to validity are analyses pertaining to the content, internal structure, psychological processes, associations, and consequences of psychological tests (Furr & Bacharach).

## **Introduction to Inferential Statistics and Hypothesis Testing**

Hypothesis testing is a statistical methodology that uses sample data to test hypotheses and make inferences about a given population (Gravetter & Wallnau, 2005). The steps to conducting hypothesis testing are to first state a hypothesis about a population in terms of a value within the population. Second, this value is used to predict the overall characteristics that a sample of individuals from a population should have.

Then, a sample is derived from a population using a probability or non-probability method. Lastly, a statistical comparison is made between the sample mean and the hypothesis made about the population. In terms of research, researchers conduct a research study and then use hypothesis testing to assess and interpret the results (Gravetter & Wallnau). There is one primary assumption in regards to hypothesis testing that is salient to all research methodologies and statistical techniques: If a treatment has some sort of effect, then the treatment should add or subtract some sort of constant amount from each participant's measure or score on a given variable. Thus, the primary goal of hypothesis testing is to evaluate the effects of a treatment on individuals from a population (Gravetter & Wallnau). It is impossible to take measures from every individual in a given population, so therefore, a representative sample is taken from the population and inferences are made back to the population based on the sample. The use of hypothesis testing allows for researchers to have a standardized method for assessing and interpreting the results of research studies (Gravetter & Wallnau).

As mentioned above, there are four primary steps to conducting hypothesis testing (Gravetter & Wallnau, 2005). First, a hypothesis about the population must be generated in the form of two opposing hypotheses stated in the context of population parameters or measures. The first hypothesis, or null hypothesis, is used to state that a given treatment will have no effect on the population. The second hypothesis, or alternative hypothesis, states that there will be an effect on the population based on the treatment, or that an independent variable will have some sort of effect on a dependent variable. The second step, according to Gravetter & Wallnau, is to use the null hypothesis to determine what

sample mean should be obtained in order to match the population mean. This helps the researcher to predict samples means that are equivalent to the null hypothesis and those means that are not similar to the null hypothesis. In order to determine the equivalency or difference between these means, a level of significance or alpha level is selected by the researcher. The alpha value constitutes a probability that is used to identify means that are highly different from the null hypothesis. If a sample mean is highly different from the null hypothesis, then the p-value from the sample mean falls in the critical region, and thus, the null hypothesis is rejected (Gravetter & Wallnau). In step three, a researcher collects data from a representative sample of individuals from a given population, after making the hypotheses mentioned above and making a decision on the alpha level. In the final step, the researcher uses an appropriate statistical test to make a decision about the sample mean in order to either reject the null hypothesis or fail to reject the null hypothesis (Gravetter & Wallnau). To make the decision to reject the null hypothesis, the sample mean must fall within the critical region. If the sample mean falls within this region, then the outcome is said to be very unlikely to occur if the null hypothesis is true and provides strong evidence that the sample mean and the hypothesized mean are very dissimilar. The researcher could then conclude that the treatment does have some sort of effect on the population of interest. To make a decision to fail to reject the null hypothesis, the sample mean cannot fall within the critical region defined by the alpha level indicating that the mean is relatively close to the null hypothesis. Because this shows a lack of evidence that the sample mean is different from the hypothesized mean, the decision is made to not reject the null hypothesis (Gravetter & Wallnau).

There are certain considerations and issues that are salient to all hypothesis tests that researchers have to take into consideration (Gravetter & Wallnau, 2005). Many of the issues associated with hypothesis testing come from the inconsistencies associated between populations and the samples derived from them. Samples, if not conducted in a probability or random fashion, may provide limited or incomplete inferences back to the population. Due to this, the findings yielded from statistical tests may not be interpretable or valid. There are two specific types of errors that can be made in hypothesis testing: Type I errors and type II errors (Gravetter & Wallnau). A type I error is when a researcher rejects a null hypothesis when the treatment has no real effect. The alpha level is used to control for the potential to incur this type of error. The alpha level is essentially the probability of times in a repeated experiment that a researcher would make a Type I error. A type II error is when a researcher fails to reject a null hypothesis when the treatment does have a real effect. This type of error normally occurs when the effect of a treatment is relatively small and does not have the ability to let a sample mean fall in the critical region (Gravetter & Wallnau).

In summation, hypothesis testing is used by researchers to assess and interpret the results of research studies. Hypothesis testing helps researchers to prove the effect of a treatment in a standardized way. There are four primary steps to conducting hypothesis testing: Make a hypothesis, determine the mean for a sample and the population, collect a sample, and then make a decision. There are also two primary considerations to account for in hypothesis testing: Type I errors and type II errors.

### **Multivariate Analysis of Variance (MANOVA)**

This section outlines the reasoning behind the multivariate analysis of variance statistical technique and how it is utilized in survey research. Multivariate analysis of variance (MANOVA) is a statistical technique used in hypothesis testing to evaluate mean differences between two or more populations (Gravetter & Wallnau, 2005). The primary inference that can be made from this type of statistical analysis is that mean differences between samples provide evidence of differences among population means. Within MANOVA analyses, each independent variable is called a factor and individual groups or treatment conditions are referred to as levels of a factor. MANOVAs can be utilized to test several different factors at the same time. There are three primary statistical assumptions that must be met when conducting a MANOVA: Independence of observations, multivariate normality, and homogeneity of covariance. Independence of observations pertains to a basic requirement of nearly all statistical tests that each observation is not influenced by any other observation. This assumption is often met by using a random sampling methodology. The assumption of multivariate normality plays a pinnacle role in relation to the underlying mathematics of an MANOVA. However, the assumption plays a much more important role in smaller samples versus larger samples. When a large sample has been collected, researchers can have a violation of this assumption and not worry about the validity of the subsequent findings. The third and final assumption for a MANOVA is the assumption of homogeneity of covariance. Essentially, the assumption requires that the populations from which given samples are derived must have similar variances. When this assumption is violated, the interpretation

and generalization of any findings are contaminated and skewed in a manner that can artificially inflate or deflate F-statistics (Gravetter & Wallnau). When significant main effects are found using an MANOVA, post hoc tests must be employed to explain which levels are actually different. Separate one-way ANOVAs are used to explain any significant main effects (Maxwell & Delaney, 2004). The MANOVA statistic is often used to calculate concurrent validity coefficients in survey research (Colton & Covert, 2007).

In summation, MANOVAs are statistical tests that can test for significant differences between two or more groups in between-subjects research designs. There are three primary statistical assumptions that have to be met before conducting this type of statistical analysis: Independence of observations, multivariate normality, and homogeneity of covariance. When significant main effects are yielded from MANOVAs, post hoc analyses must be utilized to explain where the significant main effects come from amongst the group means. MANOVA is often used to generate concurrent validity coefficients in survey research projects.

## **Correlations**

This section outlines Pearson correlations and how they are used in survey research. A correlation is a statistical methodology used to assess the degree of relationship or association between two variables (Gravetter & Wallnau, 2005). These variables are measured in a manner conducive towards how they exist in the natural environment and the researchers do not attempt to manipulate or control for other variables. Correlations measure a) the direction of a relationship being either positive or



negative, b) the form of the relationship, and c) the strength or consistency of the relationship (Gravetter & Wallnau). Correlations fall along the continuum of -1.00 to 1.00 with higher values denoting stronger relationships and values closer to 0 denoting no or small relationships. In most cases, the Pearson correlation is used to measure the degree and direction of the relationship between two variables (Gravetter & Wallnau). In terms of application, correlations are used for prediction in that if two variables have some sort of systemic relationship, one variable can be used to make predictions about another variable. Correlations are also used to test for validity and reliability coefficients. Finally, correlations are often used for theory verification in that they can help make predictions about the relationship between two different variables that are theoretically or conceptually linked. There are certain caveats associated with interpreting correlations (Gravetter & Wallnau). Correlations should not be interpreted as meaning that there is a causal relationship between two variables, just a relationship. Correlations are greatly affected by the variation in scores represented in a sample. Outliers can have a drastic effect on correlation coefficients and can artificially inflate findings. Lastly, researchers must square a correlation coefficient (coefficient of determination) to get an idea of the actual strength of a relationship between two variables. Pearson correlation coefficients are often used in survey research to prove convergent validity (Lounsbury et al., 2005).

In summation, Pearson correlations are used to explain the direction, form, and strength of a relationship between two variables. Correlations can be used for prediction of a specific occurrence, generation of validity and reliability coefficients, and theory verification. Correlations should not be interpreted in the context of denoting a causal

relationship, can be greatly affected by the existence of outliers, and must be squared in order to get an actual idea of the actual relationship between two variables. Correlations are used in survey research to yield convergent validity coefficients.

### **Multiple Regression**

This section outlines the statistical technique of multiple regression and how it is used in survey research. Multiple regression is a statistical technique used to determine the relationship between a dependent or outcome variable and a set of independent or predictor variables (Ho, 2006). Multiple regression can be used to a) obtain a mathematical model that can predict for a given outcome variable by using a given number of predictor variables, b) control for confounding variables that may have a mediating effect on the relationship between an outcome and predictor variable, and c) explain complex multivariate relationships amongst sets of predictor variables and an outcome variable (Ho). There are three primary types of regression techniques used in research: multiple regression, hierarchical regression, and stepwise regression (Ho). In standard multiple regression, all independent or predictor variables are entered into a model at the same time and the amount of unique variance accounted for by each subsequent variable and the outcome variable is evaluated. Hierarchical regression is employed when a researcher has some sort of theoretical or conceptual backing for entering subsequent predictor variables into a model in a certain order so that the unique variance accounted for by the predictors can be assessed. Stepwise regression utilizes statistical methodologies to pick out predictor variables that have high correlations with the outcome variable and those are given priority in terms of entering the model. There

are four primary statistical assumptions that must be considered when building any type of multiple regression model. First, there must be a linear association between the dependent and independent variables that can be tested for by residual plots. Second, the assumption of equal variances between observation or homoscedasticity, has to be tested. This assumption can be analyzed using either residual plots or Levene's Test of homogeneity of variance. Third, there has to be independence of error terms where outcome values are all independent of each other. The Durbin-Watson statistic is often used to test for independence of error terms. Lastly, the distribution of error terms between actual and predicted values must be normally distributed. All a researcher needs to do to analyze this assumption is a histogram of the residuals. Multicollinearity, while not a statistical assumption of multiple regression, is another drastic concern that must be analyzed in any model. Multicollinearity is the phenomenon where predictor variables are highly correlated with other predictor variables. When this occurs, the underlying mathematics of the model are contaminated and the t-values for the subsequent parameters are artificially inflated, and therefore, the highly correlated variables share predictive power. A researcher wants to know how each variable contributes unique variance to a model, not how two variables overlap to improve prediction. The variance inflation factor, or VIF is the most common statistic used to assess the level of multicollinearity in a given model ( $H_0$ ). Stepwise multiple regression analyses are often used in an exploratory fashion to prove incremental validity in survey research projects (Lounsbury et al., 2005).

In summation, multiple regression models are used by researchers to explain the unique relationships between predictor variables and an outcome variable. Multiple regression is used to find mathematical models to predict outcome variables, control for confounding relationships between variables, and find complex multivariate relationships. The three most common types of multiple regression are standard multiple regression, hierarchical regression, and stepwise regression. There are four primary statistical assumptions of any multiple regression model: Linearity, homoscedasticity, independence of error terms, and normality of the error distributions. Multicollinearity is also a concern that must be assessed in any multiple regression model. Stepwise multiple regression models are used to prove the incremental validity of instruments.

### **Conclusions on Inferential Statistics**

Inferential statistics are grounded in the empirical process of hypothesis testing (Gravetter & Wallnau, 2005). The basic premise and utility of hypothesis testing is to find the effects of treatments on individuals sampled from a population of interest. Researchers use inferential statistics within hypothesis testing to make decisions about the magnitude of treatment effects and to make inferences back to subsequent populations (Gravetter & Wallnau). MANOVAs are utilized in between-subjects research designs to test for significant mean differences between two or more groups and are used in survey research to prove the concurrent validity of surveys (Lounsbury et al.). Correlations measure the direction, form, and strength of relationships between pairs of variables (Gravetter & Wallnau) and are utilized in survey research to establish convergent validity coefficients (Lounsbury et al.). Lastly, multiple regression analyses test for the

relationships between predictor variables and outcome variables to yield mathematical models for prediction, control for confounding variables, and explain multivariate associations (Gravetter & Wallnau). Stepwise multiple regression analyses are used in survey research to prove the incremental validity of survey instruments (Lounsbury et al.).

### **Introduction to Instrumentation**

In order to provide evidence regarding the level of validity of a new survey, a nomological network comprised of constructs that are theoretically or conceptually related to a given construct is needed (Lounsbury et al., 2005). Bernard and Goodyear (2004) published two of the seminal scales that have been validated in the previous literature that are often used to assess supervisor characteristics in the supervisory dyad: The Supervisory Working Alliance Inventory—Supervisor Edition (SWAI-Supervisor; Efstation, Patton, & Kardash, 1990) and the Supervisory Styles Inventory—Supervisor Edition (SSI-Supervisor; Friedlander & Ward, 1984). The Supervision Interaction Questionnaire—Supervisor Edition (SIQ-Supervisor; Quarto, 2002) is another survey that measures supervisory characteristics that was validated using the two aforementioned surveys. These three instruments make up the nomological network associated with building a scale to measure for levels of isomorphism in supervisory dyads.

### **Supervisory Working Alliance Inventory—Supervisor Edition (SWAI-Supervisor)**

This section outlines the psychometric qualities of the SWAI-Supevisor (Efstation et al., 1990). The instrument was created to measure for the nature and strength of the working alliance between supervisor and supervisee. There are two versions of the

instrument, one for supervisees and one for supervisors. The SWAI-Supervisor instrument was comprised of 23 items and contains three scales. The first scale, “Rapport,” has seven items that measure the supervisor’s perception of rapport in the supervisory relationship. The second scale, “Client Focus,” has nine items that measure the level to which supervisors believe supervisees understand their clients. The final scale, “Identification,” has seven items assessing how much supervisors believe that their supervisees attempt to identify with them. The SWAI-Supervisor had alpha coefficients of .73 for “Rapport,” .71 for “Client Focus,” and .77 for “Identification.” Convergent validity analysis for the SWAI-Supervisor found strong correlations with the Attractive, Interpersonally Sensitive, and Task-Oriented scales of the Supervisory Styles Inventory (SSI; Friedlander & Ward, 1984).

### **Supervision Interaction Questionnaire—Supervisor Edition (SIQ-Supervisor)**

This section outlines the psychometric properties of the SIQ-Supervisor (Quarto, 2002). The Supervision Interaction Questionnaire is a measure of control and conflict within the supervisory relationship (Quarto). The 18-item supervisor version contains two scales with nine items each. The first scale is “Supervisor Control” and the second scale is “Supervision Conflict.” Alpha coefficients for the SIQ-Supervisor were .86 for the “Supervisor Control” scale and .74 for the “Supervision Conflict” scale. The “Supervision Conflict” scale had significant negative correlations with all three scales of the SWAI-Supervisor and the “Supervisor Control” scale had a positive correlation with the “Client Focus” scale from the SWAI-Supervisor.

### **Supervisory Styles Inventory—Supervisor Edition (SSI-Supervisor)**

This section outlines the psychometric properties of the SSI-Supervisor (Friedlander & Ward, 1984). The SSI-Supervisor edition contains 33 items that measure behaviors of supervisors along three supervisory styles (Friedlander & Ward). The styles include “Interpersonally Sensitive” (eight items), “Attractive” (seven items), “Task-oriented” (10 items), and eight filler items. The supervisor version of the SSI yielded alpha coefficients between .70 and .93. The convergent validity of the instrument was found using the “Teacher,” “Counselor,” and “Consultant” items from Stenack and Dye (1982) and the correlations ranged between .30 and .50. Intercorrelations between the scales were generated as well with .11 between interpersonally sensitive and task-oriented and .61 for interpersonally sensitive and attractive.

### **Conclusions on Instrumentation**

In summation, the SWAI-Supervisor, SQI-Supervisor, and SSI-Supervisor are instruments that measure the impact of supervisors on specific aspects of supervisory relationships. The SWAI-Supervisor measures the nature and strength of the working alliance between supervisor and supervisee specifically in regards to supervisor behaviors related to rapport, client focus, and identification. The SQI-Supervisor measures for levels of control and conflict within the supervisory relationship brought upon by supervisor behaviors, specifically related to supervisor control and supervisor conflict. The SSI-Supervisor measures behaviors of supervisors along three supervisory styles, interpersonally active, attractive, and task-oriented. The MCSDS Short Form C is a

truncated version of the original MCSDS that measures for social desirability in self-report survey research projects.

### **Conclusions on the Literature Review**

This literature review examined the previous literature pertaining to isomorphism and parallel processes, isomorphism within counselor education, isomorphism's effects on the processes and content of supervision, and the quantitative and qualitative research into the construct. The primary conclusion from the literature review is that isomorphism plays a pinnacle and foundational role in how supervision is facilitated and structured. However, the construct has not been operationalized, occurs at an unconscious level, is not understood or perceived by supervisees, but plays an important role in the theory, process, content, training, goals, skills, and success of supervision. Next, the nature of survey research was examined in regards to how surveys are created, categorized, and structured, how to sample in survey research projects, how social desirability affects the results of survey research projects, and how incentives affect potential respondents and overall response rates. Then, psychometrics such as reliability, exploratory factor analysis, and validity were discussed as well as inferential statistics that can yield validity coefficients such as MANOVAs, correlations, and multiple regression. Lastly, the instrumentation to be used in the validation phase of this research project was presented and each instrument's psychometric properties were discussed. The next chapter will outline the methodology to be utilized to validate and operationalize the construct of isomorphism using a survey research project.



## **Chapter 3**

### **Methodology**

#### **Introduction**

This chapter will outline the methodology that will be employed to validate and operationalize the construct of isomorphism. The construct of isomorphism has not been empirically validated and operationalized in the literature (Bernard & Goodyear, 2004), is not understood by supervisees (Raichelson et al., 1997), occurs on an unconscious level (Williams, 1997), but plays an integral role in how supervision is structured and facilitated through the utilization of counseling-based theoretical orientations, constructs, behaviors, structures, and philosophy (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997).

Survey research methodologies are often employed in social science research to investigate new constructs and unique empirical endeavors (Lounsbury et al., 2005). Colton and Covert (2007) wrote that there are eight primary steps to creating and validating a survey to measure psychological phenomena. Researchers must have a thorough understanding of the existing literature pertaining to a given construct of interest and use sound empirical methodologies in writing items and structuring surveys (Colton & Covert). Researchers must also take into consideration the nature of the population of interest, how best to sample from that population in order to make the most valid inferences, whether to use self-report or observational methodologies, the mode of administration of a survey, and how to ensure that there are acceptable response rates to a survey (Colton & Covert; Lounsbury et al.). It is also important to thoroughly analyze

the psychometric properties of a survey in regards to its reliability, underlying factor structure, and validity (Hood & Johnson, 2007).

For purposes of this specific study, a self-report survey methodology was employed to test for levels of isomorphism that exist in supervisory dyads. The population of interest for this study included faculty supervisors at both CACREP-accredited and non-accredited counseling graduate programs, advanced counseling graduate students that have had experience in supervision as well as supervisory internship experience, and supervisors with a Master's degree or higher that actively supervise counselors in either a public or private professional setting. Due to the nature of the population, a purposive sampling technique was used because of the specialized and unique subset of mental health professionals that are of interest to the construct of isomorphism. Two different modes of administration were used with electronic or internet being primarily utilized and paper and pencil being used as well. Pre- and post-incentives were used to increase response rates but a full explanation of the incentives was included in the informed consent so as to not cause unnecessary levels of cognitive dissonance or reactance to the incentives. Lastly, a series of psychometric and inferential analyses were conducted to establish the reliability, underlying factor structure, and validity of the Isomorphism Scale.

The primary purpose of the study was to empirically validate and operationalize the construct of isomorphism using a survey comprised of individual isomorphs directly derived from the existing empirical literature. The researcher piloted the survey to establish the initial internal consistency reliability coefficient for the survey and to

explore the underlying factor structure. Then, the researcher administered the survey along with three other existing and validated surveys that were theoretically and conceptually linked to the construct of isomorphism. The purpose of these administrations was to establish the convergent, incremental, and concurrent validity coefficients of the survey.

The researcher hypothesized that the Isomorphism Scale would have an alpha coefficient above .75 using approximately 35 questions and that the scale would have five primary factors accounting for 60% of the unique variance. The Isomorphism Scale would yield convergent validity coefficients of .3 with the subscales of the three validated measures that comprise the nomological network established for isomorphism. Also, the researcher hypothesized that the Isomorphism Scale would account for 15% more unique variance above and beyond existing measures in regards to the three subscales of the SSI-Supervisor. Lastly, the researcher hypothesized that the Isomorphism Scale would not be able to differentiate between gender and age groups but would differentiate between education and experience groups.

The following sections present the problem and purpose of the study, the primary research questions and hypotheses, a description of the population of interest and sampling methodology, data collection methodologies and instrumentation, data management, and psychometric and inferential analyses.

### **Problem and Purpose of the Study**

Bernard and Goodyear (2004) wrote that isomorphism is a construct that needs to be validated and operationalized to fill a gap in the literature. Isomorphism occurs on an

unconscious level (Williams, 1997), is not properly understood by supervisees (Raichelson et al., 1997), and yet serves a fundamental role in understanding how supervision is facilitated using counseling-based theory, constructs, behaviors, structures, and philosophy (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997). The purpose of the study is to validate and operationalize the construct of isomorphism by building a scale that measures for levels of isomorphism in supervisory relationships and testing its psychometric properties.

### **Research Questions**

1. What is the internal consistency reliability coefficient for the Isomorphism Scale?
2. What are the underlying factors that exist within the Isomorphism Scale?
3. What are the convergent validity coefficients between the Isomorphism Scale, the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor?
4. How much unique variance (incremental validity) does the Isomorphism Scale add to the SSI-Supervisor above and beyond the SIQ-Supervisor and the SWAI-Supervisor?
5. How well does the Isomorphism Scale differentiate (concurrent validity) between gender, age, education, and experience groups?

### **Research Objectives**

1. To establish the internal consistency of the Isomorphism Scale.
2. To determine how many underlying factors exist in the Isomorphism Scale.
3. To determine the convergent associations between the Isomorphism Scale and the SWAI-Supervisor, SIQ-Supervisor, and the SSI-Supervisor.

4. To establish how much unique variance the Isomorphism Scale adds to the SSI-Supervisor.
5. To determine how well the Isomorphism Scale differentiates between gender, age, education, and experience groups.

### **Research Hypotheses**

1. The Isomorphism Scale will have a coefficient alpha equal to .75 with approximately 35 items.
2. The Isomorphism Scale will have five underlying factors with eigenvalues above 1.0 that will account for 60% of the variance.
3. The Isomorphism Scale will have convergent validity coefficients of .3 with the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor.
4. The Isomorphism Scale will account for 15% more unique variance in the SSI-Supervisor above and beyond the SWAI-Supervisor and the SIQ-Supervisor.
5. The Isomorphism Scale will not differentiate between gender and age groups but will differentiate between education and experience groups.

### **Population and Sample**

The population of interest for this study was mental health professionals, including supervisor trainees, faculty supervisors, and clinical supervisors, who were currently pursuing or had completed a Master's degree or higher and who were being trained or had been trained in supervision and had supervised counselors-in-training or counselors that administered mental health services to clients in academic, private, or non-profit settings. The supervisor trainees were Counselor Education PhD students in

CACREP-accredited and non-accredited programs throughout the United States. The supervisor trainees had to be currently enrolled in or had completed an advanced course in supervision within a PhD program and be enrolled in a supervisory internship course or completed at least 10 hours of supervisory internship practice. The faculty supervisors were professors of any rank in a CACREP-accredited program or a non-accredited program in the United States that actively supervised Master's or PhD level trainees in either practicum or internship courses. The clinical supervisors were supervisors with at least a Master's degree or higher that supervised counselors in a private practice or non-profit setting in the United States.

Because this study was geared towards measuring a construct that exists within a specialized field within a specialized population, a purposive sampling technique was employed to gather as large and representative sample as possible and focused on this specific subset of the overall population of mental health professionals. Purposive sampling is a nonprobability methodology where the most important individuals or subgroups of interest related to a given research topic are sampled. Participants were selected based on the aforementioned criteria of either being a) a supervisor trainee in an accredited or non-accredited Counselor Education PhD program that has had an advanced class in supervision and completed at least 10 hours of supervisory internship hours, b) a faculty supervisor that was a professor of any rank at an accredited or non-accredited program that actively supervised Master's or PhD level trainees in either practicum or internship courses, or c) a clinical supervisor with a Master's degree or higher that supervised counselors in a private practice or non-profit setting.

## Survey Creation

A combination of Lounsbury et al.'s (2005) and Colton and Covert's (2007) methodology of survey research was employed in the study. In the first step, the researcher identified the purpose and focus of the study by creating a construct specification regarding isomorphism using the previous literature. The researcher then conducted a thorough review of the literature pertaining to isomorphism in order to identify individual isomorphs that make up the construct. The researcher used an online database accessible to graduate students at a research I university in the Southeastern United States. The researcher used search queries including "isomorph\*," "supervis\*," "process," "content," "research," and "counselor education." Once relevant articles were found, they were printed off and read by the researcher. These articles constituted the content areas that were utilized to construct a table of specifications for purposes of writing a scale pertaining to isomorphism.

The table of specifications was created for purposes of writing the instrument and contained three specific sections. The first section dictated what the outcomes of the scale were once administered to participants. These outcomes were written in a concise manner, each focused on one specific aspect of isomorphism and using definite terms. The second section contained the specific content areas related to isomorphism. These content areas were directly derived from the literature review provided earlier in this research proposal. The third section contained the table of specifications. Once the outcomes and content areas were defined in the previous two sections, they were placed into a two-way table that related the outcomes to the content areas and indicatee the

relative weighting of number of test items to defined content areas. Finally, once the outcomes and content areas were delineated, the test items were written to match the table of specifications.

In the second step, this construct specification was given to a panel of experts from the researcher's educational department for analysis, evaluation, and feedback regarding the construct specification and purpose of the study. The analyses, evaluations, and feedback given by the faculty were taken into consideration and changes and additions were made to the construct specification as needed. In the next step, the research methodology and type of instrument to be used for data collection was identified. The researcher chose a self-report methodology based on the research questions to be answered.

In the fourth step, the researcher formulated items for the actual survey. The researcher used the construct specification and the feedback from faculty members to write the items, as well as the methodologies for writing items espoused by both Colton and Covert (2007) and Lounsbury et al. (2005). In the fifth step, the items were pretested by administering them to a small sample from the population of interest as well as giving them to faculty members for analysis, evaluation, and feedback. In the sixth step, the researcher looked at the findings of the preliminary psychometrics and revised and formatted the instrument based on the feedback received by the faculty members and the population of interest.

In the seventh step, the survey was administered to a sample (between 150 and 300 participants) from the population of interest and some preliminary psychometric



analyses were conducted. Cronbach's alpha and an exploratory factor analysis were run on the data. Lastly, in the final step, the instrument was administered to a separate sample derived from the population of interest (between 300 and 1000 participants) along with three instruments that were theoretically or conceptually related to isomorphism. Convergent, incremental, and concurrent validity coefficients were generated using the yielded data.

In conclusion, the researcher followed the eight sequential steps of creating and validating a survey according to Lounsbury et al. (2005) and Colton and Covert (2007). First, the researcher created a table of specifications to define the purpose and content areas of proposed scale. Second, the researcher provided a panel of experts the table of specifications so that it can be analyzed and evaluated and the researcher made suggested changes to the table of specifications. Third, the researcher made an informed decision on what type of research methodology to employ as well as what type of instrument to be used for data collection purposes. Fourth, the researcher wrote items based the revised table of specifications and the type of methodology and instrument to be used in the project. Fifth, the researcher pretested the items with a small sample of participants from the population of interest and a panel of experts. Sixth, the researcher conducted preliminary psychometrics on the pretested scale and revised the instrument based on pretest feedback from participants and the panel of experts. Seventh, the revised scale was administered to a pilot sample of participants from the population (between 150 and 300 participants) and psychometrics were conducted on the results. Lastly, in the eighth step, the instrument was administered to a separate sample of individuals from the

population of interest (between 300 and 1,000 participants) along with other instruments that were conceptually linked to isomorphism to establish final reliability and validity coefficients.

### **Data Collection for the Pilot Study**

An informed consent document was written for purposes of the study. This informed consent contained information pertaining to the purpose of the study, procedures, time duration of the procedures, discomforts and risks, potential benefits, a statement of confidentiality, costs and compensation for participation, the nature of voluntary participation, contact information for the researcher, and a statement regarding consent for participating in the study. Then, the researcher purchased the rights to utilize Psychdata.net for purposes of electronic administration of the survey. The researcher then entered the informed consent and the survey items into the online software platform.

In order to gather a sample for purposes of the study, the researcher employed the use of monetary incentives and a purposive sampling technique. The researcher went to the CACREP website and looked up various CACREP-accredited programs in the United States. Using the website links to these respective programs, the researcher searched for program coordinators and faculty members that actively supervised and taught graduate students in counseling programs. The researcher recorded the email addresses of these coordinators and faculty members into an Excel database that was password protected and stored on the researcher's office computer at the University of Tennessee Graduate School of Medicine in Knoxville, TN. The researcher then drafted an email explaining the nature of the study, the population of interest, and the informed consent along with a

link that would take the potential respondent to an electronic version of the survey. As an incentive to complete the study, the researcher wrote into the email that each respondent will be entered into a raffle drawing for 1 of 20 \$100 gift cards.

The researcher also attended various professional conferences within the counseling and counselor education field to consent supervisors to be part of the study. There were three primary conferences that the researcher attended for purposes of consenting potential participants: The Association of Counselor Education and Supervision (ACES) 2011 annual conference that was held in Nashville, TN from October 26<sup>th</sup> to October 30<sup>th</sup>, 2011, the American Counseling Association 2012 annual conference that was held in San Francisco, CA from March 22<sup>nd</sup> to March 25<sup>th</sup>, 2012, and the Tennessee Counseling Association (TCA) 2011 conference that was held in Memphis, TN from November 20<sup>th</sup> to November 22<sup>nd</sup>, 2011. The researcher attended each conference and sought out supervisory professionals in person at the conference. The researcher printed out an informed consent statement including the purpose of the study, procedures, time duration of the procedures, discomforts and risks, potential benefits, a statement of confidentiality, costs and compensation for participation, the nature of voluntary participation, contact information for the researcher, and a statement regarding consent. The researcher also included on this document a link that would take the potential respondents to an electronic version of the survey once they typed the web address into their respective internet browsers. The researcher asked each potential respondent, when they consented, to enter the web address into an internet browser and then take the surveys electronically. This document was stuffed into an envelope along

with a pre-incentive of a \$1 bill. The researcher also told the potential respondents that they had been entered into a raffle drawing for 1 of 20 \$100 gift cards as a post-incentive.

### **Data Collection for the Validation Study**

The same methods from the pilot study were utilized for the validation study with the exception of accessing listservs. The researcher drafted an informed consent document that contained information related to the purpose of the study, procedures, the amount of time it would take to participate in the study, any risks or benefits associated with participation in the study, the nature of confidentiality and voluntary participation in the study, a description of the incentives for participation in the study, the researcher's contact information, and a statement that explained consenting for participation in the study. The researcher purchased the rights to utilize Psychdata.net to be able to administer the survey electronically and then entered the informed consent and subsequent surveys into the online program.

The researcher employed the use of monetary incentives and a purposive sampling technique to obtain a representative sample for purposes of the study. The researcher visited the CACREP website and looked up various CACREP-accredited programs in the United States. By clicking on the electronic links that led to each respective program's website, the researcher searched for program coordinators and faculty members that actively supervised and taught graduate students in counseling programs. The researcher recorded the email addresses of these coordinators and faculty members into an Excel database that was password protected and stored on the researcher's office computer at the University of Tennessee Graduate School of Medicine

in Knoxville, TN. The researcher then drafted an email explaining the nature of the study, the population of interest, and provided the informed consent along with an electronic link that would take the potential respondent to Psychdata.net where an electronic version of the survey was made available. As an incentive to complete the study, the researcher wrote into the email that each respondent would be entered into a raffle drawing for 1 of 20 \$100 gift cards.

In another instance, the researcher conducted an electronic search on the Internet for listservs dedicated to mental health professionals and supervisors on the American Counseling Association (ACA) website, the Association of Counselor Education and Supervision (ACES) website, CESnet (a listserv for counselor education and supervision maintained by Kent State University), the American Mental Health Counseling Association's (AMCHA) listserv, and the respective listservs for the regional branches of ACES including the Southern (SACES), North Atlantic, Western (WACES), North Central, and Rocky Mountain. Once the researcher obtained the ability to access to the listservs, the researcher drafted an email explaining the nature of the study, the population of interest, and provided the informed consent along with a link that would take the potential respondent to an electronic version of the survey. All potential participants were entered into a raffle drawing for 1 of 20 \$100 gift cards.

In the last instance, the researcher attended various professional conferences within the counseling and counselor education field to consent supervisors to be part of the study. There were three primary conferences that the researcher attended for purposes of consenting potential participants: The Association of Counselor Education

and Supervision (ACES) 2011 annual conference that was held in Nashville, TN from October 26<sup>th</sup> to October 30<sup>th</sup>, 2011, the American Counseling Association 2012 annual conference that was held in San Francisco, CA from March 22<sup>nd</sup> to March 25<sup>th</sup>, 2012, and the Tennessee Counseling Association (TCA) 2011 conference that was held in Memphis, TN from November 20<sup>th</sup> to November 22<sup>nd</sup>, 2011. The researcher attended each conference and sought out supervisory professionals in person at the conference. The researcher printed out an informed consent statement including the purpose of the study, procedures, time duration of the procedures, discomforts and risks, potential benefits, a statement of confidentiality, costs and compensation for participation, the nature of voluntary participation, contact information for the researcher, and a statement regarding consent. The researcher also included on this document a link that would take the potential respondents to an electronic version of the survey once they typed the web address into their respective internet browsers. The researcher asked each potential respondent, if they consented, to enter the web address into an internet browser and then take the surveys electronically. This document was stuffed into an envelope along with a pre-incentive of a \$1 bill. The researcher told the potential respondents that they had also been entered into a raffle drawing for 1 of 20 \$100 gift cards as a post-incentive.

### **Instrumentation**

The researcher created a nomological network comprised of constructs that were theoretically related to the construct of isomorphism because there were no existing instruments that measured the phenomenon in supervision.

### **SWAI-Supervisor**

The first instrument that the researcher believed was theoretically related to isomorphism was the Supervisory Working Alliance Inventory (SWAI; Efstation, Patton, & Kardash, 1990). This instrument was created to measure for the nature and strength of the working alliance between supervisor and supervisee. There were two versions of the instrument, one for supervisees and one for supervisors. The SWAI-Supervisor instrument was comprised of 23 items and contained three scales. The first scale, “Rapport,” had seven items that measured the supervisor’s perception of rapport in the supervisory relationship. The second scale, “Client Focus,” had nine items that measured the level to which supervisors believed supervisees understood their clients. The final scale, “Identification,” had seven items that assessed how much supervisors believed that their supervisees attempted to identify with them. The SWAI-Supervisor had alpha coefficients of .73 for “Rapport,” .71 for “Client Focus,” and .77 for “Identification.” Convergent validity analysis for the SWAI-Supervisor found strong correlations with the Attractive, Interpersonally Sensitive, and Task-Oriented scales of the Supervisory Styles Inventory (SSI; Friedlander & Ward, 1984). The researcher believed that this scale would assist in proving the convergent and incremental validity of the Isomorphism Scale due to the highly similar foci between the two measures. The SWAI-Supervisor is presented in Appendix O.

### **SIQ-Supervisor**

The Supervision Interaction Questionnaire (SIQ; Quarto, 2002) was a measure of control and conflict within the supervisory relationship. The 18-item supervisor version

contained two scales with nine items each. The first scale was “Supervisor Control” and the second scale was “Supervision Conflict.” Alpha coefficients for the SIQ-Supervisor were .86 for the “Supervisor Control” scale and .74 for the “Supervision Conflict” scale. The “Supervision Conflict” scale had significant negative correlations with all three scales of the SWAI-Supervisor and the “Supervisor Control” scale had a positive correlation with “Client Focus” from the SWAI-Supervisor. The researcher believed that this scale would assist in proving both convergent and incremental validity of the Isomorphism Scale. This was due to supervisors using counseling-based theoretical orientations to facilitate supervision. The SIQ-Supervisor is presented in Appendix P.

### **SSI-Supervisor**

The Supervisory Styles Inventory (SSI; Friedlander & Ward, 1984) Supervisor edition contained 33 items that measured for behaviors of supervisors along three supervisory styles. The styles included “Interpersonally Sensitive” (8 items), “Attractive” (7 items), “Task-oriented” (10 items), and eight filler items. The Supervisor version of the SSI yielded alpha coefficients between .7 and .93. The convergent validity of the instrument was found using the Teacher, Counselor, and Consultant items from Stenack and Dye (1982) and the correlations ranged between .3 and .5. Intercorrelations between the scales were generated as well with .11 between interpersonally sensitive and task-oriented and .61 for interpersonally sensitive and attractive. The researcher believed that this scale would also prove both convergent and incremental validity of the Isomorphism Scale. The SSI-Supervisor is presented in Appendix Q.



**Database Construction**

An Excel formatted database was constructed with 135 columns that had variable names for the 56 items and five demographic questions of the Isomorphism Scale, the 23 items of the SWAI-Supervisor scale, the 18 items of the SIQ-Supervisor, and the 33 items for the SSI-Supervisor. A codification scheme (codebook) was generated to denote the variable names in the database and the scale of measurement for each variable. Once data collection was completed, the data was imported to the database or entered by hand depending upon the mode of administration. Upon the completion of data entry, the Excel database will be uploaded into SPSS Version 19 for psychometric and statistical analyses.

**Data Cleaning**

Data cleaning was conducted by the researcher. Frequencies were run on each of the 135 variables in the database and analyzed to ensure that no coding or data entry mistakes were made. For the three instruments that were used for purposes of validation (SWAI-Supervisor, SIQ-Supervisor, and SSI-Supervisor), subscale scores were created using the “Compute Variable” application within SPSS. Next, an analysis was conducted to seek out extreme scores (outliers) and the univariate normality of each item’s distribution. The “Explore” application will be used to conduct this analysis. This application provided graphs that denote outliers in each item’s distribution as well as univariate normality tests such as the Kolmogorov-Smirnov and Shapiro-Wilk test. In the event that outliers and/or non-normal distributions were found in this part of the analysis, subsequent logarithmic transformations were conducted using the “Compute

Variable” application. Finally, in regards to missing data, expectation maximization was utilized to fill in any missing data points in the analysis using the “Replace Missing Values” application in SPSS.

### **Reliability and Factor Analysis**

Psychometric analyses were conducted on the Isomorphism Scale by the researcher. According to Lounsbury et al. (2005), the first step was to conduct an internal consistency measure of reliability analysis using Cronbach’s alpha. The researcher used the “Reliability Analysis” application to conduct the analysis. The researcher looked at the output from the reliability analysis to ensure that the alpha coefficient was above .75. Then, the researcher looked through the “Item Total Statistics” table in the output, specifically, within the “Corrected Item-Total Correlation” column of the table to seek out items that had a correlation below .3. If an item had a correlation below .3, it was removed. The researcher conducted further iterations of the reliability analysis until all items had a “Corrected Item-Total Correlation” above .3 and the alpha coefficient was above .75. At this point, an exploratory factor analysis was conducted by the researcher that was constituted of only the variables that had a “Corrected Item-Total Correlation” above .3. The researcher used the “Factor” application to conduct the analysis. The researcher looked at the “Total Variance Explained” table in the output and found the number of factors that made up the solution. The researcher used an eigenvalue cutoff of 1.0. The researcher looked to see how much variance was accounted for by each factor as well as the total amount of variance explained by all of the factors with an eigenvalue above 1.0. The researcher then used a varimax rotation to assist in interpreting the

underlying factor structure of the Isomorphism Scale. The factor loadings were then analyzed and interpreted by the researcher.

### **Validity**

In regards to the validation of The Isomorphism Scale, three validated instruments from the empirical literature were chosen. The SWAI-Supervisor with its three subscales, “Rapport,” “Client Focus,” and “Identification,” was used to assess the convergent and incremental validity of The Isomorphism Scale. The SIQ-Supervisor with its two subscales, “Supervisor Control” and “Supervisor Conflict,” was utilized to assess both the convergent and incremental validity of The Isomorphism Scale. Finally, the SSI-Supervisor with its three subscales, “Interpersonally Sensitive,” “Attractive,” and “Task-Oriented,” was utilized to assess both the convergent and incremental validity of The Isomorphism Scale. The subscale scores for each of the aforementioned instruments were calculated in the data “cleaning” phase of the analysis. A series of bivariate Pearson correlations were conducted to assess convergent validity between the composite and factor scores of the Isomorphism Scale and the subscales of the three aforementioned instruments.

Next, the composite score of the Isomorphism Scale, the three subscales of the SWAI-Supervisor, the two subscales of the SIQ-Supervisor, and the three subscales of the SSI-Supervisor were utilized to assess incremental validity. The researcher believed that the three subscales of the SSI-Supervisor (Attractive, Interpersonally Sensitive, and Task-oriented) were the most empirically validated measures in the analysis and each was used as the dependent variable in three separate stepwise multiple regression analyses.

For the “Attractive” subscale, the researcher entered all three subscales of the SWAI-Supervisor, the two subscales of the SIQ-Supervisor, and the composite score of the Isomorphism Scale into a stepwise regression analysis that chose which variables account for the most variance in “Attractive.” The same was done when analyzing the “Interpersonally Sensitive” and “Task-oriented” subscales of the SSI-Supervisor. If the  $p$ -value of the  $F$ -test was below .05, the researcher made an inference that the Isomorphism Scale accounted for a significant increase in shared variance, or incremental validity.

### **Inferential Statistics**

Lastly, a series of inferential statistics were conducted by the researcher. First, age and years of experience were analyzed using a series of bivariate Pearson correlations to see if concurrent validity existed between these variables and the factor and composite scores of the Isomorphism Scale. Then, gender and degree effects were analyzed using a MANOVA for the factor and composite scores of the Isomorphism Scale. Any significant findings were considered evidence of concurrent validity.

### **Summary of the Methodology**

This self-report survey methodology was focused on validating and operationalizing the construct of isomorphism within a population of faculty supervisors at CACREP-accredited and non-accredited counseling graduate programs, advanced counseling graduate students with supervisory knowledge and experience, and clinical supervisors with Master’s degrees or higher that actively supervise counselors in public and private settings. Electronic and paper and pencil modes of administration were used.

A purposive sampling methodology was employed along with both pre- and post-incentives. The researcher accessed listservs, accessed websites, sent emails, and attempted to consent potential participants in person in order to gather a sample for the study.

Data management and cleaning were conducted once data collection ended. Next, reliability and factor analyses were run on the data to establish the initial reliability coefficient and underlying factor structure of the survey. In the validation phase, bivariate correlations were run between the composite and factor scores of the Isomorphism Scale and the subscales scores of the three instruments in the nomological network to establish convergent validity. Then, stepwise multiple regression analyses were employed to establish the incremental validity of the Isomorphism Scale. Lastly, a series of bivariate Pearson correlations and MANOVAs were used to establish the concurrent validity of the Isomorphism Scale.

## **Chapter 4**

### **Results**

#### **Introduction**

This chapter will present the findings of this dissertation study focused on operationalizing and validating the construct of isomorphism in clinical supervision by creating a survey instrument called the Isomorphism Scale. First, the findings of the pilot study are presented, which include analyses of reliability and an exploratory factor analysis for the Isomorphism Scale. Then, the results of the validation study of the Isomorphism Scale will be presented, focusing on the convergent, incremental, and concurrent validity of the scale.

The research attempted to operationalize and validate the construct of isomorphism in clinical supervision using a self-report survey methodology. The survey instrument contained 56 items derived from the empirical literature regarding the construct of isomorphism. The original 56 items appear in Appendix M. This project was conducted because isomorphism has not been operationalized (Bernard and Goodyear, 2004), occurs on an unconscious level (Williams, 1997), is not properly understood by supervisees (Raichelson et al., 1997), and yet serves a fundamental role in understanding how supervision is facilitated using counseling-based theory, constructs, behaviors, structures, and pedagogy (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997). The first six steps for creating a survey as dictated by Lounsbury et al. (2005) and Colton and Covert (2007)

were completed. The chapter presents the findings from step seven, the pilot study, and step eight, the validation phase.

### **Descriptive Statistics and Survey Response Rate for the Pilot Study**

There were a total of 170 participants in the pilot study. Out of this sample, six participants did not complete every question within the survey. Expectation maximization was utilized to fill in the missing values within the dataset. The distributions for each item were analyzed for any outliers or coding mistakes. In terms of demographics, 67.1% ( $n = 114$ ) was female, 28.2% ( $n = 48$ ) was male, and 2 (4.7%) participants chose not to answer the question. The average age for the sample was 47.04 years ( $SD = 12.12$ ) and average number of years of supervisory experience was 12.28 years ( $SD = 9.24$ ). With level of education, 23.8% ( $n = 39$ ) had a Master's degree and 76.2% ( $n = 125$ ) were PhD-level supervisors. Please refer to Table 1 in Appendix A for the descriptive statistics.

In terms of survey response rate, a total of 899 emails were sent out to potential participants and 128 were completed, yielding a response rate of 14.24%. For the conference envelopes, a total of 148 were given out and 33 were completed for a response rate of 22.30%. A total of three observations came from paper and pencil administrations.

### **Reliability Analysis**

The internal consistency reliability of the Isomorphism Scale was analyzed using Cronbach's alpha. In the first iteration of the analysis, all 56 items were analyzed and the analysis yielded an overall Cronbach's alpha of .897. A total of 19 items did not meet the

corrected item-total correlation criterion of .30 and were removed for the second iteration. The second iteration found an alpha coefficient of .898 with 37 items. Three items did not meet the .3 corrected item-total correlation and were removed for a third iteration. The third iteration had an alpha of .896 with 34 items. Two items were removed for the fourth iteration. This iteration yielded an alpha of .895 with 32 items. One item was removed for the fifth iteration that yielded an alpha of .894. Finally, in the sixth iteration, one more item was removed which yielded an overall alpha coefficient of .893 with 30 items.

### **Exploratory Factor Analysis**

The remaining 30 questions were entered into an exploratory factor analysis using a principal components methodology and varimax rotation. The analysis yielded a nine factor solution accounting for 68.65% of the variance. The first factor, Counseling Theory, accounted for 25.68% of the variance and contained items focused on the use of counseling theoretical orientations in supervision. Specifically, the items pertained to supervisors a) using their counseling theoretical orientation in supervision because it leads to better supervisee functioning, b) believing it is important to use their counseling theoretical orientation in supervision, c) facilitating supervision using their counseling theoretical orientation, d) teaching skills using their counseling theoretical orientation, e) believing the success of supervision is dependent upon the use of their counseling theoretical orientation in supervision, f) carrying over counseling theory and principles into supervision, and g) structuring supervision using their counseling theoretical orientation.



The second factor, Similarities, accounted for 11.21% of the variance and items that loaded on it pertained to similarities between counseling and supervision. Specifically, the items focused on a) the belief that the goals of supervision and counseling are similar, b) the content of supervision and counseling are similar, c) the process of supervision and counseling are similar, and d) the skills sets needed in supervision and counseling are similar. The third factor, Counseling Processes and Content, accounted for 6.86% of the overall variance and contained items related to supervisors having to deal with counseling-type issues in supervision. Specifically, the items dealt with supervisors a) having to challenge supervisees' thinking styles in supervision, b) placing an emphasis on the dynamics within supervision, c) having to process countertransference issues in supervision, d) clarifying boundaries in supervision, e) processing the recapitulation of supervisee family dynamics in supervision, and f) processing transference issues with supervisees in supervision.

The fourth factor, Processing, accounted for 5.15% of the variance and contained items dealing with a) believing the basic principles of change used in counseling are similar to the basic principles of change used in supervision, b) processing the similarities of counseling and supervision with supervisees, and c) processing the roles of supervisor and supervisee within the supervisory dyad. The fifth factor, Counseling Interventions, accounted for 4.70% of the variance and items that loaded on it pertained to supervisors a) using counseling interventions in supervision to initiate supervisee growth, b) using counseling interventions in supervision to empower supervisees, and c) using similar techniques in supervision and counseling. The sixth factor, Supervisee Baggage,

accounted for 4.20% of the variance and had items related to supervisees a) bringing personal affective issues unrelated to their counseling practice into supervision and b) bringing personal cognitive issues unrelated to their counseling practice into supervision.

The seventh factor, Adopting Dynamics, accounted for 4.05% of the variance and dealt with supervisors a) believing that supervisees adopt the dynamics they are exposed to in supervision and b) believing that process the supervisees' family of origin dynamics is an important part of supervision. The eighth factor, Autonomy, accounted for 3.46% of the variance and contained one item dealing with supervisors promoting the autonomy of supervisees. The ninth and final factor, Models and Reflection, accounted for 3.34% of the variance and had items where supervisors a) urge supervisees to reflect on their counseling practice in supervision and b) think that most models of supervision come directly from counseling theory. The percent of variance accounted for by each factor appears in Table 2 in Appendix B.

### **Descriptive Statistics and Survey Response Rate for the Validation Study**

There were a total of 272 participants in the validation study. Out of this sample, 33 participants did not complete every question within the survey. Expectation maximization was utilized to fill in the missing values within the dataset. The distributions for each item were analyzed for any outliers or coding mistakes. In terms of demographics, 57.3% ( $n = 137$ ) were female, 41.4% ( $n = 99$ ) were male, 3 participants chose not to answer the question. The average age for the sample was 44.91 years ( $SD = 11.96$ ) and average number of years of supervisory experience was 11.27 years ( $SD = 9.98$ ). With level of education, .4% ( $n = 1$ ) had just a Bachelor's, 30.6% ( $n = 73$ ) had a

Master's degree, and 69% ( $n = 165$ ) had a PhD. Please refer to Table 3 in Appendix C for the demographics.

In terms of survey response rate, a total of 2,298 emails were sent out to potential participants and 221 were completed, yielding a response rate of 9.62%. For the conference envelopes, a total of 33 were given out and 8 were completed for a total response rate of 24.2%. A total of ten observations came from paper and pencil administrations.

### **Convergent Validity**

In regards to convergent validity, the composite score of the Isomorphism Scale was significantly positively correlated to the "Client Focus" subscale of the SWAI-Supervisor ( $r = .239, p < .001, r^2 = .057$ ), the "Rapport" subscale of the SWAI-Supervisor ( $r = .317, p < .001, r^2 = .101$ ), and the "Identification" subscale of the SWAI-Supervisor ( $r = .353, p < .001, r^2 = .125$ ). The composite score of the Isomorphism Scale was significantly positively correlated to the "Attractive" subscale of the SSI-Supervisor ( $r = .306, p < .001, r^2 = .094$ ), the "Interpersonally Sensitive" subscale of the SSI-Supervisor ( $r = .302, p < .001, r^2 = .091$ ), and the "Task-oriented" subscale of the SSI-Supervisor ( $r = .158, p = .009, r^2 = .025$ ). Lastly, the Isomorphism Scale composite score was significantly correlated to the "Supervision Conflict" subscale of the SIQ-Supervisor ( $r = .141, p = .020, r^2 = .020$ ) but was not correlated to the "Supervisor Control" subscale of the SIQ-Supervisor,  $r = .103, p = .091$ .

In regards to "Counseling Theory," there were significant convergent validity coefficients between the factor and the "Client Focus" ( $r = .223, p < .001, r^2 = .050$ ),

“Rapport” ( $r = .208, p = .001, r^2 = .043$ ), and the “Identification” ( $r = .312, p < .001, r^2 = .097$ ) subscales of the SWAI-Supervisor. “Counseling Theory” was also significantly correlated to both the “Supervisor Control” ( $r = .134, p = .027, r^2 = .018$ ) and “Supervisor Conflict” ( $r = .130, p = .032, r^2 = .017$ ) subscales of the SIQ-Supervisor. Lastly, “Counseling Theory” was significantly correlated with the “Attractive” ( $r = .191, p = .002, r^2 = .037$ ), “Interpersonally Sensitive” ( $r = .183, p = .002, r^2 = .033$ ), and the “Task-oriented” ( $r = .164, p = .007, r^2 = .027$ ) subscales of the SSI-Supervisor.

With “Similarities,” there were significant convergent validity coefficients with the “Rapport” ( $r = .163, p = .007, r^2 = .027$ ) and the “Identification” ( $r = .256, p < .001, r^2 = .066$ ) subscales of the SWAI-Supervisor but not with the “Client Focus” subscale,  $r = .063, p = .297$ . “Similarities” was also correlated with the “Supervision Conflict” subscale ( $r = .140, p = .021, r^2 = .020$ ) of the SIQ-Supervisor but not the “Supervisor Control” subscale,  $r = .083, p = .174$ . Lastly, “Similarities” was significantly correlated with the “Attractive” ( $r = .231, p < .001, r^2 = .053$ ), “Interpersonally Sensitive” ( $r = .213, p < .001, r^2 = .045$ ), and the “Task-oriented” ( $r = .200, p = .001, r^2 = .040$ ) subscales of the SSI-Supervisor.

With “Counseling Processes and Content,” there were significant convergent validity coefficients with the “Client Focus” ( $r = .189, p = .002, r^2 = .036$ ), “Rapport” ( $r = .285, p < .001, r^2 = .081$ ), and the “Identification” ( $r = .222, p < .001, r^2 = .049$ ) subscales of the SWAI-Supervisor. “Counseling Processes and Content” was not correlated with either the “Supervisor Control” ( $r = .019, p = .754$ ) subscale or the “Supervisor Conflict” ( $r = .048, p = .426$ ) subscale of the SIQ-Supervisor. Lastly,

“Counseling Processes and Content” was significantly correlated with the “Attractive” ( $r = .187, p = .002, r^2 = .035$ ) and “Interpersonally Sensitive” ( $r = .242, p < .001, r^2 = .059$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = .032, p = .596$ .

“Processing” had significant convergent validity coefficients with the “Client Focus” ( $r = .198, p = .001, r^2 = .039$ ), “Rapport” ( $r = .262, p < .001, r^2 = .069$ ), and “Identification” ( $r = .209, p = .001, r^2 = .044$ ) of the SWAI-Supervisor. “Processing” was not correlated with either the “Supervisor Control” ( $r = .021, p = .724$ ) subscale or the “Supervisor Conflict” ( $r = .103, p = .089$ ) subscale of the SIQ-Supervisor. Lastly, “Processing” was significantly correlated with the “Attractive” ( $r = .206, p = .001, r^2 = .042$ ) and “Interpersonally Sensitive” ( $r = .228, p < .001, r^2 = .052$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = .111, p = .067$ .

“Counseling Interventions” had significant convergent validity coefficients with the “Client Focus” ( $r = .174, p = .004, r^2 = .030$ ), “Rapport” ( $r = .219, p < .001, r^2 = .048$ ), and “Identification” ( $r = .281, p < .001, r^2 = .079$ ) of the SWAI-Supervisor. “Counseling Interventions” was not correlated with either the “Supervisor Control” ( $r = .058, p = .344$ ) subscale or the “Supervisor Conflict” ( $r = .117, p = .055$ ) subscale of the SIQ-Supervisor. Lastly, “Counseling Interventions” was significantly correlated with the “Attractive” ( $r = .300, p < .001, r^2 = .090$ ) and “Interpersonally Sensitive” ( $r = .254, p < .001, r^2 = .065$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = .087, p = .153$ .

With “Supervisee Baggage,” there were significant convergent validity coefficients with the “Client Focus” ( $r = .138, p = .023, r^2 = .019$ ) and the “Rapport” ( $r =$

.183,  $p = .002$ ,  $r^2 = .034$ ) subscales of the SWAI-Supervisor but not with the “Identification” subscale,  $r = .108$ ,  $p = .075$ . “Supervisee Baggage” was not correlated with either the “Supervisor Control” ( $r = .107$ ,  $p = .078$ ) subscale or the “Supervisor Conflict” ( $r = .047$ ,  $p = .443$ ) subscale of the SIQ-Supervisor. Lastly, “Supervisee Baggage” was significantly correlated with the “Attractive” ( $r = .155$ ,  $p = .010$ ,  $r^2 = .024$ ) and “Interpersonally Sensitive” ( $r = .120$ ,  $p = .048$ ,  $r^2 = .014$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = -.009$ ,  $p = .888$ .

With “Adopting Dynamics,” there were significant convergent validity coefficients with the “Rapport” ( $r = .225$ ,  $p < .001$ ,  $r^2 = .051$ ) and “Identification” ( $r = .248$ ,  $p < .001$ ,  $r^2 = .062$ ) subscales of the SWAI-Supervisor but not the “Client Focus” subscale,  $r = .108$ ,  $p = .075$ . “Adopting Dynamics” was significantly correlated with the “Supervision Conflict” subscale of the SIQ-Supervisor ( $r = .195$ ,  $p = .001$ ,  $r^2 = .038$ ) but on the “Supervisor Control” subscale,  $r = .062$ ,  $p = .310$ . Lastly, “Adopting Dynamics” was significantly associated with the “Attractive” ( $r = .188$ ,  $p = .002$ ,  $r^2 = .035$ ), “Interpersonally Sensitive” ( $r = .227$ ,  $p < .001$ ,  $r^2 = .052$ ), and “Task-oriented” ( $r = .121$ ,  $p = .046$ ,  $r^2 = .015$ ) subscales of the SSI-Supervisor.

“Autonomy” had significant convergent validity coefficients with the “Client Focus” ( $r = .119$ ,  $p = .049$ ,  $r^2 = .014$ ), “Rapport” ( $r = .243$ ,  $p < .001$ ,  $r^2 = .059$ ), and “Identification” ( $r = .156$ ,  $p = .010$ ,  $r^2 = .024$ ) subscales of the SWAI-Supervisor. “Autonomy” had a significant negative correlation with the “Supervision Conflict” subscale ( $r = -.170$ ,  $p = .005$ ,  $r^2 = .029$ ) of the SIQ-Supervisor, but no association with the “Supervisor Control” subscale,  $r = -.069$ ,  $p = .260$ . “Autonomy” was significantly

correlated with the “Attractive” ( $r = .265, p < .001, r^2 = .070$ ) and “Interpersonally Sensitive” ( $r = .223, p < .001, r^2 = .050$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = -.048, p = .402$ .

Finally, “Models and Reflection” yielded significant convergent validity coefficients with the “Client Focus” ( $r = .274, p < .001, r^2 = .075$ ), “Rapport” ( $r = .292, p < .001, r^2 = .085$ ), and the “Identification” ( $r = .277, p < .001, r^2 = .077$ ) subscales of the SWAI-Supervisor. There were no significant associations between “Models and Reflection” and the “Supervisor Control,”  $r = .103, p = .091$ , or the “Supervision Conflict,”  $r = .033, p = .584$ , subscales of the SIQ-Supervisor. “Models and Reflection” was significantly correlated with the “Attractive” ( $r = .358, p < .001, r^2 = .128$ ), and “Interpersonally Sensitive” ( $r = .275, p < .001, r^2 = .076$ ) subscales of the SSI-Supervisor but not the “Task-oriented” subscale,  $r = .108, p = .076$ . Correlations between the factors and composite score of the Isomorphism and the subscales of the SWAI-Supervisor, SIQ-Supervisor, and SSI-Supervisor appear in Table 4 in Appendix D.

There is strong evidence of convergent validity for the Isomorphism Scale. The evidence shows that isomorphism as a phenomenon and the individual aspects of isomorphism are significantly related to the working alliance of supervision and the supervisory style used in supervision. However, isomorphism was not as strongly correlated to the interactions between supervisors and supervisees in regards to control and conflict.

### **Incremental Validity**

The three subscales of the SSI-Supervisor were used as the dependent variable in three stepwise multiple regression models to generate incremental validity evidence for the composite score of the Isomorphism Scale. Here are the six independent variables that were entered into each of the three models: The “Client Focus” of the SWAI-Supervisor, the “Rapport” of the SWAI-Supervisor, the “Identification” of the SWAI-Supervisor, the “Supervisor Control” of the SIQ-Supervisor, the “Supervisor Conflict” of the SIQ-Supervisor, and the composite score of the Isomorphism Scale. Residuals plots of the standardized residuals were generated to assess meeting the assumption of linearity and homoscedasticity. The Durbin-Watson statistic was used to assess for independence of error terms. Tolerance statistics were utilized to assess any issues pertaining to multicollinearity in the models. Finally, a histogram of the residuals was created to assess meeting the normality of error terms.

In terms of the first stepwise regression model with the “Attractive” subscale of the SSI-Supervisor as the dependent variable, residual plots found no violations of linearity or homoscedasticity, the histogram of residuals was normally distributed, and the Durbin-Watson statistic was acceptable at 2.019. In the first step of the model, the “Rapport” subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance accounted for in the “Attractive” subscale,  $\Delta R^2 = .338$ ,  $F(1, 270) = 138.06$ ,  $p < .001$ . In the second step, the composite score of the Isomorphism scale was entered and accounted for a significant increase in variance,  $\Delta R^2 = .016$ ,  $F(1, 269) = 6.87$ ,  $p = .009$ . In the third and final step of the analysis, the “Supervision Conflict” subscale



of the SIQ-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .023$ ,  $F(1, 268) = 9.71$ ,  $p = .002$ . No other variables met criteria to be entered into the model. The unstandardized beta coefficients, standard errors, and standardized coefficients are presented in Table 5 in Appendix E.

With the second stepwise regression model with the “Interpersonally Sensitive” subscale of the SSI-Supervisor as the dependent variable, residual plots found no violations of linearity or homoscedasticity, the histogram of residuals was normally distributed, and the Durbin-Watson statistic was acceptable at 2.12. In the first step of the model, the “Rapport” subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance accounted for in “Interpersonally Attractive,”  $\Delta R^2 = .256$ ,  $F(1, 270) = 92.81$ ,  $p < .001$ . In the second step, the “Client Focus” subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .024$ ,  $F(1, 269) = 8.90$ ,  $p = .003$ . In the third step, the “Supervision Conflict” subscale of the SIQ-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .022$ ,  $F(1, 268) = 8.61$ ,  $p = .004$ . In the fourth step, the composite score of the Isomorphism Scale was entered and accounted for a significant increase in variance,  $\Delta R^2 = .026$ ,  $F(1, 267) = 10.34$ ,  $p = .001$ . No other variables met criteria to be entered into the model. The unstandardized beta coefficients, standard errors, and standardized coefficients are presented in Table 6 in Appendix F.

With the third stepwise regression model with the “Task-oriented” subscale of the SSI-Supervisor as the dependent variable, residual plots found no violations of linearity or homoscedasticity, the histogram of the residuals was normally distributed, and the

Durbin-Watson statistic was acceptable at 1.98. In the first step of the model, the “Client Focus” subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .205$ ,  $F(1, 270) = 69.61$ ,  $p < .001$ . In the second step, the “Identification” subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .015$ ,  $F(1, 269) = 5.23$ ,  $p = .023$ . No other variables met criteria to be entered into the model. The unstandardized beta coefficients, standard errors, and standardized coefficients are presented in Table 7 in Appendix G.

The three stepwise multiple regression analyses found evidence of incremental validity for The Isomorphism Scale’s composite score. This finding can be interpreted as meaning that isomorphism accounts for unique variance above and beyond existing measures in regards to supervisors that rate themselves as having either an “Attractive” or “Interpersonally Sensitive” style within supervision.

### **Concurrent Validity**

Bivariate Pearson correlations were used to test for associations between the variables of age and years of experience and the nine factors and composite score of the Isomorphism scale. In regards to age, there were no significant concurrent validity coefficients for “Counseling Theory,” ( $r = -.103$ ,  $p = .840$ ), “Similarities,” ( $r = -.065$ ,  $p = .318$ ), “Counseling Processes and Content,” ( $r = -.042$ ,  $p = .517$ ), “Processing,” ( $r = -.019$ ,  $p = .776$ ), “Supervisee Baggage,” ( $r = -.052$ ,  $p = .427$ ), “Adopting Dynamics,” ( $r = -.072$ ,  $p = .265$ ), “Autonomy,” ( $r = -.109$ ,  $p = .093$ ), “Models and Reflection,” ( $r = -.067$ ,  $p = .302$ ), or the Isomorphism Scale composite score ( $r = -.078$ ,  $p = .230$ ). There was a

significant negative correlation between age and “Counseling Interventions,”  $r = -.153$ ,  $p = .018$ ,  $r^2 = .023$ . See Table 8 in Appendix H for concurrent validity coefficients.

Pearson correlations also found no significant concurrent validity coefficients between years of experience and “Counseling Theory,” ( $r = .019$ ,  $p = .764$ ), “Similarities,” ( $r = -.043$ ,  $p = .507$ ), “Counseling Processes and Content,” ( $r = -.034$ ,  $p = .597$ ), “Processing,” ( $r = .007$ ,  $p = .920$ ), “Supervisee Baggage,” ( $r = -.097$ ,  $p = .133$ ), “Adopting Dynamics,” ( $r = -.028$ ,  $p = .670$ ), “Autonomy,” ( $r = -.004$ ,  $p = .951$ ), “Models and Reflection,” ( $r = -.044$ ,  $p = .495$ ), or The Isomorphism Scale composite score ( $r = -.045$ ,  $p = .490$ ). There was a significant negative correlation between years of experience and “Counseling Interventions,”  $r = -.127$ ,  $p = .049$ ,  $r^2 = .022$ . See Table 8 in Appendix H for the concurrent validity coefficients.

To test for gender and degree level effects, two separate MANOVA analyses were used to control for familywise error rates when testing multiple hypotheses as in the case where the nine factors and the composite score of the Isomorphism Scale were being analyzed. Levene’s test of equality of error variances was not violated for any of the ten analyses and each variable had a normal distribution according to skewness and kurtosis statistics. The gender analysis found an overall non-significant main effect,  $F(9, 226) = 4.619$ ,  $p = .864$ . Tests of between-subjects effects found non-significant gender differences for “Counseling Theory” ( $p = .814$ ), “Similarities” ( $p = .419$ ), “Counseling Processes and Content” ( $p = .383$ ), “Processing” ( $p = .623$ ), “Counseling Interventions” ( $p = .979$ ), “Supervisee Baggage” ( $p = .773$ ), “Adopting Dynamics” ( $p = .677$ ), “Autonomy” ( $p = .741$ ), “Models and Reflection” ( $p = .664$ ), and The Isomorphism Scale

composite score ( $p = .884$ ). The means and standard deviations for the gender analysis can be found in Table 9 in Appendix I.

In terms of the degree level effect, the test of equality of error variance was not violated for any of the analyses with the exception of factor six and each variable had a normal distribution according to skewness and kurtosis statistics. An overall non-significant degree level main effect was found,  $F(9, 228) = 10.538, p = .315$ . Tests of between-subjects effects found non-significant differences between Master's and PhD degree holders for "Counseling Theory" ( $p = .445$ ), "Similarities" ( $p = .760$ ), "Counseling Processes and Content" ( $p = .860$ ), "Processing" ( $p = .370$ ), "Counseling Interventions" ( $p = .338$ ), "Supervisee Baggage" ( $p = .382$ ), "Adopting Dynamics" ( $p = .356$ ), "Autonomy" ( $p = .371$ ), "Models and Reflection" ( $p = .343$ ), or The Isomorphism Scale composite score ( $p = .931$ ). The means and standard deviations for the degree level analysis can be found in Table 9 in Appendix I.

### **Summary of the Results**

The purpose of the research was to operationalize and validate the construct of isomorphism in supervisory dyads using a self-report survey methodology. This dissertation was focused on completing the seventh and eighth steps of the survey creation methodologies espoused by Lounsbury et al. (2005) and Colton and Covert (2007). The pilot study analysis found an alpha coefficient of .893 with 30 items and an exploratory factor analysis yielded a nine factor solution accounting for 68.65% of the variance. The validation study yielded empirical evidence of convergent and incremental validity for the Isomorphism Scale, but no concurrent validity evidence was found in the

analysis. The next chapter will contain a discussion about the study regarding the findings, conclusions, implications, and future research.

## **Chapter 5**

### **Conclusions**

#### **Introduction**

This chapter will present a summary of the study, the findings, conclusions, implications, and future research avenues for the construct of isomorphism. The summary will be a general overview of the entire study including the research problem, the type of data collected, research questions, literature review, survey development, participant population, and response rate. Then, a review of the statistical findings will be presented. The conclusions section will provide a discussion of the research study and its findings. Within the implications section, practical suggestions for addressing issues brought upon by the study and how the study can be utilized by mental health professionals will be presented. Lastly, future research into the construct of isomorphism will be discussed along with rationales for the research.

#### **Summary of the Study**

The research problem that this study was focused on was operationalizing and validating the construct of isomorphism in supervisory dyads. Bernard and Goodyear (2004) stated that the construct needs to be operationalized. Isomorphism is also thought to occur on an unconscious level outside of both the supervisor's and supervisee's frame of reference (Williams, 1997). Rachelson et al. (1997) found that isomorphic phenomena in supervision are not properly perceived and understood by supervisees. Despite the lack of operationalization and understanding of the construct, it serves as a foundation for understanding how supervision is facilitated through the use of counseling-based theory,

processes, content, behaviors, constructs, structure, and pedagogy (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997).

In order to address the research problem, the researcher created a new instrument to measure for isomorphism in the supervisory relationship and test its psychometric properties. The researcher used the steps for creating a new survey instrument that were proposed by Lounsbury et al. (2005) and Colton and Covert (2007). The first six steps were completed including a) creating a table of specifications to define the purpose and content areas of proposed scale, b) giving a panel of experts the table of specifications for analysis, evaluation, and suggestions, c) choosing a survey research methodology and instrument type that will answer the research question, d) writing survey items based the revised table of specifications and the type of methodology and instrument, e) pretesting the items with a small sample of participants from the population of interest and a panel of experts, and f) conducting preliminary psychometrics on the pretested scale and revising the instrument based on pretest feedback from participants and the panel of experts. For purposes of this dissertation, step seven was completed by piloting the survey with a sample of participants from the population of interest and conducting psychometric analyses. Also, step eight was completed by administering the survey to a separate sample of individuals from the population of interest along with other instruments that are conceptually linked to isomorphism to establish convergent, incremental, and concurrent validity.

In order to create the construct specification in step one, a thorough and exhaustive review of the literature pertaining to the construct of isomorphism in supervision was conducted. There were four primary areas within the literature from which survey items were constructed: Counseling theoretical orientations being used in supervision, the isomorphic tendencies in counselor education and training, supervisory processes, and supervisory content. A total of 56 individual isomorphs were identified across these four areas and survey items were written for each one. A total of 11 items (19.6% of the survey) were written regarding the use of counseling theoretical orientations in supervision. There were 20 items (35.7% of the survey) written that focused on the isomorphic tendencies in counselor education and training, followed by 16 items for supervisory processes (28.6% of the survey), and nine items for supervisory content (16.1% of the survey).

The aforementioned population of interest consisted of mental health professionals, including supervisor trainees, faculty supervisors, and clinical supervisors, who are currently pursuing or have completed a Master's degree or higher and who are being trained or have been trained in supervision and have supervised counselors-in-training or counselors that administer mental health services to clients in academic, private, or non-profit settings. The supervisor trainees were Counselor Education PhD students in CACREP-accredited and non-accredited programs throughout the United States. The supervisor trainees were currently enrolled in or have completed an advanced course in supervision within a PhD program and were currently enrolled in a supervisory internship course or completed at least 10 hours of supervisory internship practice. The



faculty supervisors were professors of any rank in a CACREP-accredited program or a non-accredited program in the United States that actively supervise Master's or PhD level trainees in either practicum or internship courses. The clinical supervisors were supervisors with at least a Master's degree or higher that supervise counselors in a private practice or non-profit setting in the United States.

There were a total of 170 participants in the pilot study. In terms of demographics, 67.1% ( $n = 114$ ) was female, 28.2% ( $n = 48$ ) was male, and 2 (4.7%) participants chose not to answer the question. The average age for the sample was 47.04 years ( $SD = 12.12$ ) and average number of years of supervisory experience was 12.28 years ( $SD = 9.24$ ). With level of education, 23.8% ( $n = 39$ ) had a Master's degree and 76.2% ( $n = 125$ ) were PhD-level supervisors. The survey response rate for electronic administration was 14.24% (128/899) and 22.30% (33/148) for conference envelopes. Three participants filled out paper and pencil surveys.

There were a total of 272 participants in the validation study. In terms of demographics, 57.3% ( $n = 137$ ) were female, 41.4% ( $n = 99$ ) were male, 3 participants chose not to answer the question. The average age for the sample was 44.91 years ( $SD = 11.96$ ) and average number of years of supervisory experience was 11.27 years ( $SD = 9.98$ ). With level of education, .4% ( $n = 1$ ) had just a Bachelor's, 30.6% ( $n = 73$ ) had a Master's degree, and 69% ( $n = 165$ ) had a PhD. The survey response rate for electronic administration was 9.62% (221/2,298) and 24.2% (8/33) for conference envelopes. Ten participants filled out paper and pencil surveys.

There were five primary research questions in this dissertation:

1. What is the internal consistency reliability coefficient for the Isomorphism Scale?
2. What are the underlying factors that exist within the Isomorphism Scale?
3. What are the convergent validity coefficients between the Isomorphism Scale, the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor?
4. How much unique variance (incremental validity) does the Isomorphism Scale add to the SSI-Supervisor above and beyond the SIQ-Supervisor and the SWAI-Supervisor?
5. How well does the Isomorphism Scale differentiate (concurrent validity) between gender, age, education, and experience groups?

## **Findings**

With the pilot study, the Isomorphism Scale had an overall Cronbach's alpha of .893 with 30 items. The exploratory factor analysis found a nine factor solution accounting for 68.65% of the variance. The results of the validation study found evidence of convergent validity for the Isomorphism Scale composite score and its nine factors. The Isomorphism Scale composite score was significantly correlated with the "Client Focus" ( $r = .239, p < .001$ ), "Rapport" ( $r = .317, p < .001$ ), and "Identification" ( $r = .353, p < .001$ ) subscales of the SWAI-Supervisor. The composite score was also significantly correlated to the "Supervision Conflict" subscale of the SIQ-Supervisor ( $r = .141, p = .020$ ) and the "Attractive" ( $r = .306, p < .001$ ), "Interpersonally Sensitive" ( $r = .302, p < .001$ ), and "Task-oriented" ( $r = .158, p = .009$ ) subscales of the SSI-Supervisor. There was also evidence of incremental validity for the Isomorphism Scale composite score. The composite score added a significant amount of variance accounted for in the

“Attractive” subscale of the SSI-Supervisor,  $\Delta R^2 = .016$ ,  $p = .009$ . It also accounted for a significant amount of variance in the “Interpersonally Sensitive” subscale of the SSI-Supervisor,  $\Delta R^2 = .026$ ,  $p = .001$ . No evidence of concurrent validity was found for the Isomorphism Scale composite score in regards to age ( $r = -.078$ ,  $p = .230$ ), experience ( $r = -.045$ ,  $p = .490$ ), gender  $F(9, 226) = 4.619$ ,  $p = .864$ , or degree  $F(9, 228) = 10.538$ ,  $p = .315$ .

## Conclusions

The reliability and exploratory factor analysis yielded an instrument with strong internal consistency that accounted for a large amount of variance. Fifty-six items were constructed, representing all of the content areas in the construct specification and just over half of them made it into the final iteration of the reliability analysis. Lounsbury et al. (2005) wrote that survey researchers should write twice as many items as they think they will need to measure a construct and this was proven true in this particular instance. However, it is posited that too many factors were derived from the analysis because of the limited sample size of 170 participants. However, the factors of the analysis present strong evidence related to the core facets of isomorphism as postulated by White and Russell (1997).

The most recurring and salient content area of the literature review, the use of counseling-based theoretical orientations in supervision, was the primary factor accounting for the most variance (25.68%). This is logical considering that the literature postulates that a) isomorphism between counseling and supervision occurs because of the use of counseling-based theory in supervision (Liddle 1988), b) supervisors and trainers

need to use counseling-based principles of change in supervision (Liddle et al., 1984), c) supervision *must* be structured and facilitated according to the supervisor's chosen counseling-based theory and skills *should* be taught using a counseling-based theory (Liddle & Schwartz, 1983), d) most models of supervision are directly derived from counseling theory (Friedlander et al., 1989), e) use of a counseling-based theory in supervision leads to better supervisee functioning (Lowe, 2000), f) success of supervision is dependent upon the use of counseling-based theories in supervision (Gentry, 1986), and g) translation of counseling-based models and principles into supervision is a core facet of the construct of isomorphism (White & Russell, 1997). Going further, Anderson et al. (1995) thought that supervisors should conduct supervision using their counseling-based theory because this reinforces the philosophy underlying the theory which in turn creates successful and facilitative supervisory environments. The evidence yielded from the analysis shows that the use of counseling-based theory in facilitating supervision is the most readily identifiable isomorph or similarity between counseling and supervision. This particular isomorph has drastic implications on the success of supervision, the functioning of the supervisee, and the betterment of the client which are three of the most important aspects of any supervisory relationship. White & Russell wrote that each facet of isomorphism needed to be validated and the researcher posits that this finding validates the core facet of isomorphism pertaining to translating counseling-based models and principles into supervision.

The "Similarities" factor contained four items dealing with similarities between counseling and supervision and accounted for the second most variance in the

Isomorphism Scale (11.21%). The items presented statements related to similar goals, processes, content, and needed skills between counseling and supervision. Liddle (1982) believed that each of the aforementioned constructs were interdependent in counseling and supervision. One of the core facets of isomorphism found by White and Russell (1997) was having identical structure and processes in counseling and supervision.

While these items do not break down the individual similarities between counseling and supervision in regards to goals, processes, content, and needed skills, this factor provides evidence that supervisors believe that some of the most foundational aspects of supervision are *similar, identical, repetitive, and isomorphic* to the foundational aspects of counseling and thus validates another facet of isomorphism posited by White and Russell, identical structure and processes in counseling and supervision.

The “Counseling Processes and Content” factor contains items focused on some of the individual similarities supervisors saw between counseling and supervision and accounted for 6.86% of the variance. These individual similarities included a) having to challenge supervisee thinking styles in supervision (process), b) placing an emphasis on dynamics in supervision (content), c) having to process countertransference issues in supervision (process), d) having to process transference issues in supervision (process), e) clarifying boundaries in supervision (process), and f) the recapitulation of supervisee family dynamics in supervision (content). Each of these items came directly from the empirical literature and each item’s content constitutes an individual isomorph that exists between counseling and supervision. Liddle and Saba (1983) wrote that challenging supervisees’ thinking styles and emphasizing both dynamics and clarification of

boundaries are some of the most important isomorphs that exist between counseling and supervision. Schneider (1992) said that transference and countertransference were always going to be present in any supervisory relationship and must be processed just like in a counseling relationship. Getz and Protinsky (1994) believed that isomorphic occurrences in supervision came about as a result of family of origin dynamics and that the recapitulation should be processed as it occurs in the supervisory relationship. The factor contains isomorphs related to similar processes and content types that supervisors and supervisees experience between counseling and supervision. When one looks at the content of each individual item, it is not hard to see that a counselor could experience each in a *similar* fashion when conducting a counseling session. Thus, one can surmise that there are similar processes and content between counseling and supervision. This finding further validates two of White and Russell's (1997) core facets of isomorphism, identifying repetitive patterns between counseling and supervision and isomorphic role behavior as a supervisor and therapist.

The "Processing" factor has items that focus on the role of the supervisor processing the similarities of counseling and supervision with supervisees and accounts for 5.15% of the variance. The factor contains items related to supervisors a) believing the basic principles of change used in counseling are similar to the basic principles of change in supervision (Liddle et al. 1984), b) processing the similarities of counseling and supervision with their supervisees (Williams, 1997), and c) processing the roles of supervisors and supervisees in supervision (Liddle & Saba, 1985). The researcher believes that a supervisor *has* to process these similarities in order to promote a clear

delineation between counseling and supervision. With so much overlap and replication between the two and the lack of operationalization and validation, a supervisee could easily not be able to understand when and where counseling ends and supervision begins (Remley & Herlihy, 2004). This is especially true when considering that isomorphism is thought to occur on an unconscious level (Williams). Moorehouse and Carr (2001) postulated that isomorphism can shift the focus of supervision from the client to the supervisor relationship and dynamics when it is not processed with the supervisee. The processing of systemic similarities between counseling and supervision can assist both supervisors and supervisees from forming unethical relationships in supervision and also help identify boundaries between the constant overlapping systems. This finding also further validates one of the core facets of isomorphism (White & Russell, 1997), isomorphic role behavior as a supervisor and therapist.

The “Counseling Interventions” factor had items specifically related to supervisors using counseling-based interventions in supervision and accounted for 4.7% of the variance. Specifically, the items deal with supervisors a) using similar interventions in counseling and supervision, b) using counseling interventions to initiate supervisee growth, and c) using counseling interventions to empower supervisees. Considering that supervisors use counseling-based theory to facilitate supervision (Liddle & Schwartz, 1983), perceive counseling and supervision as being similar in terms of goals, processes, content, and needed skills (Liddle, 1982), deal with similar processes and content in counseling and supervision (Heath, 1982), and process the similarities between counseling and supervision (Williams, 1997), it is logical that supervisors would

use similar interventions in both counseling and supervision. With similar theoretical bases, processes, content, goals, and needed skills, a supervisor cannot help but use similar counseling-based interventions to assist supervisees and empower them in their professional practice because the interventions are directly derived from said theories, processes, content, goals, and skills. Liddle et al. (1984) wrote that counseling-based interventions are operational aspects of every supervisory relationship. Strengths-based, cognitive-behavioral, and solution-focused interventions are often used to assist supervisees, give positive support, and provide structure in supervision (Edwards & Chen, 1999; Frankel & Piercy, 1990; Thomas, 1994). Going further, Heath stipulated that instilling hope, modeling, conflict resolution, promoting altruism, mutual respect, and universality are all isomorphic interventions between counseling and supervision. Structural-strategic counseling models have also been used in supervision to expand competencies, challenge worldviews, process behavior patterns, set goals, role play, and organize the relationship (Liddle, 1985). Also, because of the isomorphic nature of counseling and supervision, supervisees will often bring emotional and cognitive baggage into the relationship, and supervisors must take the time to process and work through these issues using counseling interventions (Roberts et al., 1999). Transference and countertransference issues in supervision are worked out using counseling-based interventions as well (Schneider, 1992). Lastly, isomorphic interventions between counseling and supervision are thought to be more convenient, efficient, and successful while giving supervisees practical experience with the interventions (Burnham, 2010). The use of similar interventions in counseling and supervision is an important isomorphic



phenomenon that accounts for many of the techniques that supervisors use to facilitate supervision and help supervisees grow as mental health professionals. This further provides validity evidence for the fourth core facet according to White and Russell (1997), isomorphism as an interventive stance.

The final four factors only have one to two items on each factor but together account for 15.05% of the variance (“Supervisee Baggage” = 4.2%, “Adopting Dynamics” 4.05%, “Autonomy” 3.46%, and “Models and Reflection” 3.34%). “Supervisee Baggage” contains two items dealing with supervisees bringing both personal affective and cognitive baggage into the supervisory relationship. It is postulated that this will always occur in supervision because supervisors are using counseling-based theory, processes, content, skills, and interventions to facilitate supervision. Furthermore, because isomorphism is thought to occur on an unconscious level (Williams, 1997) and plays such a large role in how supervision is facilitated (Liddle, 1982), supervisees will unconsciously perceive what the supervisor is doing in supervision as counseling and act out the part of the client in supervision (Boyd, 2007). This can cause serious and detrimental damage to both the supervisor and supervisee if it is not properly processed within the supervisory dyad. Supervision is *not* supposed to be counseling but the lines between the two are very blurred (Remley and Herlihy, 2004).

“Adopting Dynamics” contained two items focusing on supervisees adopting the dynamics they are exposed to in supervision. It is believed that what supervisees are exposed to in supervision will automatically carryover into their counseling practice (Agazarian, 1999; Botelho, 1991; Getz & Protinsky, 1994; Lee, 1997; Liddle, 1988).

Therefore, supervisors should take great care in using counseling-based theory, processes, content, skills, and interventions in supervision because their supervisees will carry over the same theory, processes, content, skills, and interventions into their counseling practice.

“Autonomy” is closely linked to “Adopting Dynamics” but also introduces quite the conundrum for supervisors. If supervisors use counseling-based theory, processes, content, skills, and interventions in supervision, and one can expect supervisees to adopt that into their professional practice and use it in supervision, then how do supervisors promote the autonomy of supervisees? It is hypothesized that this is where the processing of similarities between counseling and supervision is very important. It seems natural that supervisees will adopt the dynamics presented into supervision and use them in their practice, but supervisors must take the time to process these isomorphic occurrences with the supervisee so that the supervisee does not become completely dependent upon the supervisor and supervisory dynamics. White and Russell (1997) believed that isomorphic occurrences should be explored in supervision for the betterment of the supervisee.

“Models and Reflection” contains an item related to supervisors urging supervisees to reflect on their counseling practice and an almost completely separate item pertaining to supervisors believing that most models of supervision come directly from counseling theory. Reflection on practice in supervision is highly similar to a client reflecting on an experience in counseling and is often used to get the individual to delve deeper into phenomena in their life. In order to process all of the unconscious isomorphic

occurrences in supervision, supervisors must ask for their supervisees to explore the isomorphic content within supervision to better understand why it goes on and what purpose it serves within the supervisory relationship. Moorhouse and Carr (2001) thought that isomorphism can shift the focus of supervision from the client to the supervisory relationship if it is not processed effectively. Lastly, just like Friedlander et al. (1989) wrote, most models of supervision come directly from counseling. All of the aforementioned analyses in regards to the factors of the Isomorphism Scale provide evidence that counseling and supervision are highly similar in regards to theory, processes, content, skills, and interventions.

There was strong convergent validity evidence for the Isomorphism Scale in the validation phase of the analysis. With the analysis between the three subscales SWAI-Supervisor and the composite and factor scores of Isomorphism Scale, there were only three non-significant validity coefficients. Of particular note, the relationship between the “Identification” subscale of the SWAI-Supervisor and the composite score of the Isomorphism Scale was very strong,  $r = .353, p < .001$  as well as the correlation between “Counseling Theory” and “Identification,”  $r = .312, p < .001$ , and factor nine,  $r = .277, p < .001$ . The “Identification” items ask supervisors to assess how much their supervisees attempt to identify with them. It is hypothesized that this finding shows evidence that as supervisors increase the use of counseling-based theory in supervision and continually use isomorphic processes, content, skills, and interventions in supervision, their supervisees will identify more with them, and in turn, adopt the dynamics they are exposed to in supervision and use them in their own supervisory practice. Therefore, supervisors

must take careful consideration into what types of counseling-based theories, processes, content, skills, and interventions that they bring into supervision because chances are that their supervisees will be replicating and carrying them over into their own professional practice. This can also be seen in the significant correlation between “Counseling Interventions” and “Identification,”  $r = .281, p < .001$ . This finding presents evidence that supervisors think that their supervisees identify with them more when they use counseling-based interventions in supervision. Lastly, the supervisors thought there was more “Identification” when counseling and supervision was similar in regards to goals, processes, content, and needed skills (“Similarities”),  $r = .256, p < .001$ . In essence, the findings suggest that when supervisors use counseling-based theory, goals, processes, content, skills, and interventions in supervision, supervisees are more likely to identify with them and have a stronger working alliance in supervision.

The “Rapport” subscale of the SWAI-Supervisor presents items that measure the perception of rapport in the supervisory relationship. From the convergent validity analysis, evidence suggests that supervisors see more rapport in the supervisory relationship when there are similar goals, processes, content, and skills (“Similarities”) used by the supervisor in supervision,  $r = .262, p < .001$ , when the supervisor challenges thinking styles, emphasizes dynamics, clarifies boundaries, and processes transference, countertransference, and recapitulation phenomena (“Counseling Processes and Content”),  $r = .285, p < .001$ , processes the similarities between counseling and supervision (“Processing”),  $r = .262, p < .001$ , and reflects on practice (“Models and Reflection”),  $r = .292, p < .001$ . There was also a significant correlation between the

composite score of the Isomorphism Scale and “Rapport,”  $r = .317, p < .001$ . By the supervisor conducting and facilitating supervision using counseling-based theory, processes, content, and skills, rapport-building is built right into the supervisory relationship because rapport-building is a necessary part of any counseling relationship, and therefore a necessary part of any supervisory relationship. When a supervisor takes the time to process things such as transference, countertransference, recapitulations, dynamics, boundaries, and reflect on practice, the supervisee will feel more comfortable with the supervisor and be more involved and vested in the supervisory relationship.

The “Client Focus” subscale of the SWAI-Supervisor assesses how much supervisors believe that their supervisees understand their clients’ issues. The validity coefficients between this subscale and the Isomorphism Scale composite and subscale scores were weaker in comparison to the other two subscales of the SWAI-Supervisor. The most significant convergent validity coefficients were between “Client Focus” and “Counseling Theory,”  $r = .223, p < .001$ , “Models and Reflection,”  $r = .274, p < .001$ , and the composite score of the Isomorphism Scale,  $r = .239, p < .001$ . It is posited that factor nine is the most interpretable finding in this instance because it deals with urging supervisees to reflect on their practice within supervision. As supervisors urge supervisees to do this in supervision, their focus on client issues will improve. With “Counseling Theory,” due to the fact that reflection on practice is an integral part of any counseling-based theory or practice, the more that a supervisor uses a counseling-based theory in supervision, the more opportunities there will be for a supervisee to do this within the process of supervision. The composite score correlation shows that as the

construct of isomorphism as a whole appears in supervision, the more focus the supervisee's clients will receive as a result.

There were very few significant convergent validity coefficients with the subscales of the SIQ-Supervisor ("Supervisor Control" and "Supervision Conflict"). There was only one significant correlation in relation to "Supervisor Control" and that was with "Counseling Theory,"  $r = .134, p = .027$ . It is logical to surmise that there would be an increase the perception of control when supervisors use their counseling-based theoretical orientation in supervision. As the literature has shown, supervisors must structure and facilitate supervision according to their chosen counseling-based theory and that they should teach skills using a counseling-based theory (Liddle & Schwartz, 1983). It is the supervisor making a choice within the relationship to structure and facilitate supervision using their own chosen theory that gives them a sense of control. Interestingly enough, the correlation between "Counseling Theory" and the "Supervision Conflict" was significant as well,  $r = .130, p = .032$ . So, this means that at times, supervisees may not adhere to the particular counseling-based theoretical orientation that the supervisors practice which may cause conflict in the supervisory relationship. And, since a supervisor using a counseling-based theory in supervision has drastic implications on every aspect of the supervisory relationship, this potentially means that every aspect of relationship that stems from theory will cause conflict. There were also significant convergent validity coefficients between "Supervision Conflict" and "Similarities,"  $r = .140, p = .021$ , and "Adopting Dynamics,"  $r = .195, p = .001$ . This means that conflict can arise from the constant overlap between counseling and

supervision in regards to similar goals, processes, content, and needed skills as well as the dynamics that are fostered as a result of isomorphism. When the supervisee is forced to be in a supervisory relationship that is strictly structured in the same fashion as a counseling relationship, the dynamics of the relationship can cause conflict because the supervisee never had a choice in regards to the goals, processes, content, and interventions used by the supervisor. These types of dynamics and conflict would then potentially carry over into the counseling relationship which would lead to less therapeutic success. There was a significant negative correlation between “Supervision Conflict” and “Autonomy,”  $r = -.170, p = .005$ . This is an interesting finding in that the interpretation shows that supervisees will feel less conflict in the supervisory relationship when they are allowed to be autonomous. It is logical that this would happen because taking away a supervisee’s ability to think about and practice counseling would definitely cause conflict in the supervisory relationship. Lastly, there was a significant correlation between the composite score of the Isomorphism Scale and “Supervision Conflict,”  $r = .141, p = .02$ . As supervisees are forced to be in supervisory relationships where the supervisor’s theory is used to facilitate and structure supervision, more conflict can be expected, especially in the case that the supervisee and the supervisor have different views on the efficacy of a given theory.

All of the convergent validity coefficients between the “Attractive” subscale of the SSI-Supervisor and the composite and factor scores of the Isomorphism Scale were significant. Of particular note are the correlations between “Attractive” and “Counseling Interventions,”  $r = .30, p < .001$ , “Models and Reflection,”  $r = .358, p < .001$ , and the

composite score of The Isomorphism Scale,  $r = .306, p < .001$ . These findings show that the isomorphic tendencies between counseling and supervision related to using counseling-based interventions in supervision, reflection in supervision, and the overall construct of isomorphic are attractive to supervisees. It is hypothesized that these are significant findings because supervisees would perceive counseling interventions and reflection on practice as being an aspect of supervision that is completely and utterly geared towards assisting them in growing as professionals and most times done in a beneficent and positive manner by supervisors. It is also attractive to supervisors because they can use their own chosen theoretical orientation to facilitate supervision which in turn brings their own philosophies about the goals, processes, content, skills, interventions, and structure of supervision into the relationship. The supervisor is essentially in control of the relationship. The other significant positive validity coefficients with the factors of the Isomorphism Scale are indicative of an overall attractiveness to supervisors in being able to use their counseling-based theory, interventions, processes, content, skills, and philosophy in supervision.

All of the convergent validity coefficients between the “Interpersonally Sensitive” subscale of the SSI-Supervisor and the composite and factor scores of the Isomorphism Scale were significant. These findings show that the isomorphic tendencies between counseling and supervision are perceived by supervisors as being sensitive to the needs of supervisees and clients as well. Particularly, the correlation with “Models and Reflection” shows that supervisors believe giving supervisees the chance to reflect on their practice shows sensitivity to their needs,  $r = .275, p < .001$ . The use of counseling-



based interventions (“Counseling Interventions”) is thought by supervisors to show a sensitivity to the dynamics of the supervisory relationship,  $r = .254, p < .001$ . Also, having to deal with interpersonal counseling-based processes such as transference and countertransference shows sensitivity to the supervisory relationship,  $r = .242, p < .001$ . Overall, there is a significant positive relationship between isomorphism and “Interpersonal Sensitivity,” meaning that isomorphic tendencies are perceived by supervisors as meeting the interpersonal needs of a supervisory relationship,  $r = .302, p < .001$ .

There were far fewer significant convergent validity coefficients between the “Task-oriented” subscale of the SSI-Supervisor and the composite and factor scores of the Isomorphism Scale. Significant convergent validity coefficients were found between “Task-oriented” and “Counseling Theory,”  $r = .164, p = .007$ , “Similarities,”  $r = .200, p = .001$ , “Adopting Dynamics,”  $r = .121, p = .046$ , and the composite score,  $r = .158, p = .009$ . One can readily see how the use of counseling-based theoretical orientations by supervisors in supervision drives the tasks undertaken and required by supervisors, especially in regards to the goals, processes, content, dynamics, and skills within supervision.

With incremental validity, the composite score of the Isomorphism Scale added significant variance above and beyond other measures that were conceptually and theoretically linked to two of the subscales of the SSI-Supervisor. In the first stepwise multiple regression model using the “Attractive” subscale as the dependent variable, the Isomorphism Scale was added in the second step of the model after the “Rapport” scale

of the SWAI-Supervisor was added in the first step. The “Supervisor Conflict” subscale of the SIQ-Supervisor was added in the third step. When the Isomorphism Scale was added in the second step of the analysis, it added a significant amount of variance to the restricted model,  $\Delta R^2 = .016$ ,  $F(1, 269) = 6.87$ ,  $p = .009$ , meaning that the Isomorphism Scale has incremental validity in predicting for the “Attractive” subscale. These findings show that establishing rapport is the most important part of using an attractive style of supervision and that using counseling-based theories, goals, processes, content, skills, and interventions in supervision is also an important part of having an attractive style within supervision. The third step in the model is logical in that the more conflict there is in supervision, the less chance there is of being perceived as an attractive supervisor.

With the stepwise multiple regression analysis using the “Interpersonally Sensitive” subscale of the SSI-Supervisor as the dependent variable, the composite score of the Isomorphism Scale was added to the model in the fourth step of the model after the “Rapport” subscale of the SWAI-Supervisor, the “Client Focus” subscale of the SWAI-Supervisor, and the “Supervision Conflict” subscale of the SIQ-Supervisor. When the composite score of the Isomorphism Scale was added in the fourth step, it constituted a significant increase in variance accounted for in the “Interpersonally Sensitive” subscale,  $\Delta R^2 = .026$ ,  $F(1, 267) = 10.34$ ,  $p = .001$ . These findings show that the most important aspect of being perceived as being interpersonally sensitive is the rapport that exists between the supervisor and supervisee, followed by creating a supervisory environment where the focus is on the client and there is little conflict. Then, the use of counseling-based theories, goals, processes, content, skills, and interventions comes into play when

being perceived as being interpersonally sensitive. In essence, rapport and a focus on the client helps to build the relationship between the supervisor and supervisee, and with this establishment of rapport, less conflict is thought to occur, and then the use of counseling-based constructs helps the supervisor to be more sensitive to the needs of both the supervisees and their clients. This is a very linear trend that is highly isomorphic to any sort of counseling relationship. First, rapport is built between the counselor and client (supervisor and supervisee), then the client's issues are given focus (supervisee's issues in practice), conflict may occur but is dealt with effectively due to rapport and a focus on issues (supervisee and supervisor conflict occurs but is dealt with effectively), and the counselor uses theory, goals, processes, content, skills, and interventions to help clients solve their issues (the supervisor uses counseling-based theory, goals, processes, content, skills, and interventions to help the supervisee become a better counselor). These findings present evidence of incremental validity for the Isomorphism Scale.

The Isomorphism Scale did not add any unique variance to the "Task-oriented" subscale of the SSI-Supervisor. In the first step of the model, the "Client Focus" subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .205$ ,  $F(1, 270) = 69.61$ ,  $p < .001$ . In the second step, the "Identification" subscale of the SWAI-Supervisor was entered and accounted for a significant increase in variance,  $\Delta R^2 = .015$ ,  $F(1, 269) = 5.23$ ,  $p = .023$ . No other variables were entered into the model. From the convergent validity analysis, one could see that there was not a strong relationship between the "Task-oriented" subscale and the Isomorphism Scale. It appears that a perception of being task-oriented is centered on focusing on the client and the

supervisee identifying with the supervisor. The use of counseling-based theory, goals, processes, content, skills, and interventions does not play a role in being perceived as task-oriented.

The last type of validity evidence from this study pertains to concurrent validity which is the ability of an instrument to delineate and show differences between different groups of interest in a given population. There was very little concurrent validity evidence found in the analysis of age, years of experience, gender, or type of degree held. There were two significant findings related to “Counseling Interventions” and age,  $r = -.153$ ,  $p = .018$ , and years of experience,  $r = -.127$ ,  $p = .049$ . These findings essentially mean that as a supervisor ages and gains more experience, they are less likely to use counseling-based interventions in their practice. This is a very interesting finding and can be interpreted as meaning that novice supervisors are much more likely to use counseling-based interventions because it is all that they know how to use in the beginning of their careers. As supervisors gain more experience, they will be less likely to use these types of interventions.

It is hypothesized that the relative absence of concurrent validity evidence is a major finding in this study. This can be attributed to the fact that isomorphism is salient across age and experience strata as well as gender and degree status. All supervisors are fostering isomorphic tendencies in supervision regardless of these four variables. In essence, isomorphism exists in supervision regardless of age, experience, gender, or education and is fostered equally across these demographic variables.

This reliable and valid instrument can be used in many different ways within the supervisory environment. First and foremost, the instrument can be used to assess the level with which isomorphism is occurring within any given supervisory relationship. Because the construct has not been operationalized until this point, supervisors do not know what individual isomorphs are that exist within supervisory dyads. Also, the use of the instrument will bring the isomorphic phenomena into the conscious minds of the supervisor and supervisee which will in turn promote both awareness and processing of the occurrences. The construct has existed up to this point on an unconscious level and it has not been understood by supervisees. Using the instrument will serve as a springboard for identifying individual isomorphs in supervision and creating a dialogue within supervision to process the implications of said isomorphs.

This study has yielded evidence showing that the construct of isomorphism does exist within supervision and has identified the most important and salient isomorphs that exist in supervision. The results have provided validation evidence for each of the five core facets of isomorphism as postulated by White & Russell (1997): Identifying repetitive or similar patterns, translation of therapeutic models and principles into supervision, the structure and process of therapy and supervision are identical, isomorphism as an interventive stance, and individuals behave isomorphically in their roles as supervisor and therapist. The study has operationalized each of the core facets of isomorphism.

Going further, isomorphism, both as an aggregate phenomenon and in terms of its individual components, is significantly related to building strong working alliances in

supervision as well as being perceived as an attractive and interpersonally sensitive supervisor. Building a strong working alliance within supervision and having a supervisory style that meets the needs of both supervisees and clients is critical towards the success of any given supervisory relationship. Isomorphism plays a significant role in both areas and therefore should be utilized and processed within any supervisory dyad. Isomorphism also accounts for new and unique variance above and beyond existing measures in regards to perception of supervisory style, meaning that the construct is measuring for something new that has not been accounted for before. Lastly, evidence from the study has shown that isomorphism exists equally across gender, age, education level, and supervisory experience. Therefore, it is a salient phenomenon that exists in all supervisory relationships.

### **Implications**

In terms of implications for this study, the researcher believes that the process of operationalizing and validating the construct of isomorphism is the very first step in regards to understanding the drastic and foundational influence that isomorphism has not only on supervision, but clinical practice and counselor education. This study has shown that while supervision is *not* supposed to be counseling (Remley & Herlihy, 2004), supervisors are using counseling-based theory, goals, processes, content, skills, and interventions to facilitate and structure supervision and many aspects of the supervisory relationship. The researcher does not believe that this is a negative phenomenon, however, because isomorphism is thought to occur on an unconscious level (Williams, 1997), the *awareness* of the phenomenon must be brought to light and the isomorphic

tendencies of counseling and supervision must be processed so that supervision does *not* become counseling.

Supervisors must take into consideration the types of counseling-based theories, goals, processes, content, skills, and interventions that they bring to the supervisory relationship because supervisees are very likely to adopt the dynamics of the supervisory relationship (Agazarian, 1999) and carryover the phenomena within supervision into their mental health practice (Boyd, 2007). One of the key components of supervision is to build up the autonomy of the supervisee and empower them in their practice (Bernard & Goodyear, 2004), however, due to the interdependency of counseling and supervision, there is strong potential that supervisees may become too dependent upon the dynamics of the supervisory relationship and not grow as professionals or take into account the needs of the clients, just their own personal cognitive and affective needs within supervision. It is important to remember that the overreaching purpose of supervision is for the betterment and beneficence of the client. Yet, if supervisory relationships tend to focus more upon the relationship and dynamics between the supervisor and supervisee due to the supervisor using counseling-based theory, goals, processes, content, skills, and interventions in supervision, then the entire purpose of supervision, the betterment of the client, is lost.

The construct of isomorphism as a whole and its individual isomorphs need to be better understood and perceived by supervisors and supervisees. The literature shows that isomorphism is an unconscious process (Williams, 1997) and is not understood by supervisees (Raichelson et al., 1997). Yet, it plays an important role in how supervision

is facilitated and structured (Liddle, 1988). By promoting this understanding and bringing the construct out of the unconscious and into the conscious mind and awareness of both supervisors and supervisees, there are fewer chances that inappropriate dual relationships will be created in supervision as a proxy for counseling. This study has shown that supervisors often have to deal with issues of transference, countertransference, recapitulations of family dynamics, and supervisees bringing personal cognitive and affective issues into the supervisor dyad. By better understanding and perception of isomorphism, clearer boundaries, roles, and delineations will be created in both counseling and supervision, and all members of the supervisory relationship will better understand where counseling ends and supervision begins.

Lastly, the researcher believes that isomorphism has drastic implications on the nature of counselor education. Past research has stated that training environments of counseling and supervision are highly similar (Liddle, 1988), trainers should use the same principles of change used in counseling to teach skills (Liddle et al., 1984), and that educators should train students using their chosen theoretical orientation because it refines the underlying philosophy of counseling and leads to successful training environments (Anderson et al., 1995). It is very important to understand how counseling-based theory, goals, processes, content, skills, and interventions affect the training environment of future counselors and supervisors. It would be interesting to know how much carryover occurs from the counseling training environment and the supervisor training environment into actual practice and what affects this carryover has on the



quality of practice and success of the subsequent counseling and supervisory relationships.

### **Future Research**

First, as with any new instrument or survey research project, the process of validation is an ongoing and dynamic process that never ends. The Isomorphism Scale needs to be further validated with other existing measures that assess the efficacy of supervisory relationships. Also, future research should look to expand upon sample size and diversity of the sample so as to make better inferences to the overall population of supervisors.

Second, it is also important to understand what role isomorphism plays in the relative success of supervisory dyads. Does the use of counseling-based theory, goals, processes, content, skills, and interventions lead to more successful supervisory dyads? Also, does the use of counseling-based theory, goals, processes, content, skills, and interventions in supervision lead to better client outcomes? It is important to remember that the overreaching goal of supervision is for the betterment of the client. If the use of isomorphism leads to better supervisory outcomes, then it should also lead to better client outcomes.

Third, this entire study has been focused on operationalizing and validating the construct of isomorphism from the supervisor's frame of reference. The construct also needs to be operationalized and validated from the supervisee's perspective. It is important to understand what the supervisee brings to the table in regards to fostering isomorphism in supervision. Also, research needs to show what the effects of supervisors

bringing their counseling-based theories, goals, processes, content, skills, and interventions are from the supervisees' perspective.

Fourth, research needs to focus on the role of isomorphism in counselor education. The researcher believes that the Venn diagram presented in the Introduction section of this dissertation is missing a valuable third component or circle, the training environment for both counseling and supervision. If there is interdependency and isomorphism between counseling and supervision, then there has to be some sort of interdependency with training and counselor education as well.

Fifth, some qualitative research into the construct of isomorphism would be a valuable contribution to the literature. Research questions related to a supervisor's or supervisee's phenomenological experience of isomorphism or the experience of individual isomorphs such as transference or countertransference in the supervisory dyad would be very beneficial in helping supervisors learn how to deal with such counseling-based occurrences in the arena of supervision.

## **Summary**

The purpose of this dissertation was to operationalize and validate the construct of isomorphism in clinical supervision. The construct had not been operationalized in the literature (Bernard & Goodyear, 2004), occurs on an unconscious level (Williams, 1997), is not understood by supervisees (Raichelson et al., 1997), and yet plays a vital and foundational role in how supervision is facilitated (Gentry, 1986; Liddle, Breunline, Schwartz, & Constantine, 1984; Liddle & Saba, 1983; White & Russell, 1997). The researcher used a self-report survey research methodology espoused by Colton and

Covert (2007) and Lounsbury et al. (2005) to create an instrument that could measure for levels of isomorphism in supervisory relationships in order to operationalize and validate the construct of isomorphism.

A pilot study of this instrument yielded a 30 item instrument with a Cronbach's alpha coefficient of .893 and nine underlying factors. The factor analysis yielded a solution that accounted for 68.65% of the overall variance. "Counseling Theory" accounted for 25.68% of the variance and contained items related to the use of counseling-based theory in supervision. "Similarities" accounted for 11.21% of the variance and contained items regarding the similarities between counseling and supervision including goals, processes, content, and needed skills. "Counseling Processes and Content" accounted for 6.86% of the variance and contained items related to individual similarities between counseling and supervision. "Processing" accounted for 5.15% of the variance and contained items dealing with supervisors processing the similarities of counseling and supervision with their supervisees. "Counseling Interventions" accounted for 4.7% of the variance and had items related to supervisors using counseling-based interventions in supervision to help supervisees. "Supervisee Baggage" accounted for 4.2% of the variance and contained items focused on supervisees bringing personal affective and cognitive baggage into the supervisory dyad. "Adopting Dynamics" accounted for 4.05% of the variance and had items related to supervisees adopting the dynamics they were exposed to in supervision. "Autonomy" accounted for 3.46% of the variance and had an item focusing on promoting the autonomy of supervisees in supervision. Finally, "Models and Reflection" accounted for 3.34% of the

variance and had items pertaining to reflective practice in supervision and the belief that most models of supervision are directly derived from counseling theory.

In the validation phase of the dissertation, there was strong convergent validity evidence found between the Isomorphism scale, its nine factors, and the subscales of the SWAI-Supervisor, the SIQ-Supervisor, and the SSI-Supervisor. Some of the most significant convergent validity coefficients were found between the composite score of the Isomorphism Scale and the “Client Focus” ( $r = .239, p < .001$ ), “Rapport” ( $r = .317, p < .001$ ), and “Identification” subscales of the SWAI-Supervisor, and the “Attractive” ( $r = .306, p < .001$ ) and “Interpersonally Sensitive” ( $r = .302, p < .001$ ) subscales of the SSI-Supervisor. In regards to the individual factors of the Isomorphism Scale, there were strong convergent validity coefficients between “Counseling Theory” and “Identification” ( $r = .312, p < .001$ ), “Counseling Processes and Content” and “Rapport” ( $r = .285, p < .001$ ), “Processing” and “Identification” ( $r = .281, p < .001$ ) and “Processing” and “Attractive” ( $r = .300, p < .001$ ), and “Models and Reflection” with “Client Focus” ( $r = .274, p < .001$ ), “Rapport” ( $r = .292, p < .001$ ), “Identification” ( $r = .277, p < .001$ ), “Attractive” ( $r = .358, p < .001$ ), and “Interpersonally Sensitive” ( $r = .275, p < .001$ ). Everyone of the composite and factor scores the Isomorphism Scale were significantly correlated with “Rapport” subscale (correlations ranged between .183 and .317), the “Attractive” subscale (correlations ranged between .155 and .358), and the “Interpersonally Sensitive” subscale (correlations ranged between .120 and .302).

The composite score of the Isomorphism Scale added unique variance above and beyond other existing measures when predicting for the “Attractive” and “Interpersonally

Sensitive” subscales of the SSI-Supervisor meaning that there was evidence of incremental validity. The composite score of the Isomorphism Scale added a significant amount of variance to the model predicting for “Attractive” in the second step,  $\Delta R^2 = .016$ ,  $F(1, 269) = 6.87$ ,  $p = .009$ . The composite score of the Isomorphism Scale also added a significant amount of variance to the model predicting for “Interpersonally Sensitive” in the fourth step,  $\Delta R^2 = .026$ ,  $F(1, 267) = 10.34$ ,  $p = .001$ . The composite score of the Isomorphism Scale did not add any unique variance to the model predicting for “Task-oriented.”

Lastly, there was very little concurrent validity evidence found for the composite and factor scores of the Isomorphism Scale. The only significant findings that were found suggest that as supervisors age ( $r = -.153$ ,  $p = .018$ ) and gain more supervisory experience ( $r = -.127$ ,  $p = .049$ ), they are less likely to use counseling-based interventions in their supervisory practice. There were no significant concurrent validity findings for gender or degree level.

The researcher was able to make several definitive conclusions for the pilot and validation phases of the dissertation. Most importantly, the phenomenon of isomorphism has been found to exist in supervision. The construct was operationalized and this operationalization further validated the five core facets of isomorphism. The operationalization and validation of isomorphism will assist in a) measuring for levels of isomorphism in supervisory dyads, b) bringing the once unconscious and misunderstood phenomenon into the awareness of both supervisors and supervisees, and c) creating a dynamic dialogue within supervision so that isomorphic occurrences can be processed.

Going further, the Isomorphism Scale is a reliable and valid instrument that has significant associations with measures pertaining to building working alliances in supervision and perceiving attractive and interpersonally sensitive supervisory styles. The Isomorphism Scale also measures for new and unique phenomena that have not been accounted for in previous supervisory instruments. Lastly, The Isomorphism Scale has shown that isomorphism is a salient phenomenon to all supervisory relationships and that it is equally fostered across gender, age, experience, and education groups.

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## **Appendices**

## Appendix A

Table 1

### *Demographics of the Pilot Study*

	<i>M (SD)</i>	Percentage ( <i>n</i> )
Age	47.04 (12.12)	
Experience	12.28 (9.24)	
Gender		
Male		28.2% (48)
Female		67.1% (114)
Prefer not to answer		4.7% (2)
Education		
Master's		23.8% (39)
PhD		76.2% (125)

## Appendix B

Table 2

*Percent of Variance Accounted for by Factors of the Isomorphism Scale*

---

Factor	Percent
Counseling Theory	25.68%
Similarities	11.21%
Counseling Processes and Content	6.86%
Processing	5.15%
Counseling Interventions	4.70%
Supervisee Baggage	4.20%
Adopting Dynamics	4.05%
Autonomy	3.46%
Models and Reflection	3.34%

---

## Appendix C

Table 3

### *Demographics of the Validation Study*

	<i>M (SD)</i>	Percentage ( <i>n</i> )
Age	44.91 (11.96)	
Experience	11.27 (9.98)	
Gender		
Male		41.4% (99)
Female		57.3% (137)
Prefer not to answer		1.3% (3)
Education		
Bachelor's		.4% (1)
Master's		30.6% (73)
PhD		69% (165)

### Appendix D

Table 4

*Convergent Validity Coefficients of the Isomorphism Scale Factors and Composite Score*

	Focus	Rap	Ident	Cont	Conf	Att	Sens	Task
CT	.223*	.208*	.312*	.134*	.130*	.191*	.183*	.164*
Sim	.063	.262*	.256*	.083	.140*	.231*	.213*	.200*
CP&C	.189*	.285*	.222*	.019	.048	.187*	.242*	.032
Process	.198*	.262*	.209*	.021	.103	.206*	.228*	.111
CI	.174*	.219*	.281*	.058	.117	.300*	.254*	.087
Baggage	.138*	.183*	.108	.107	.047	.155*	.120*	-.009
AD	.108	.225*	.248*	.062	.195*	.188*	.227*	.121*
Auto	.119*	.243*	.156*	-.069	-.170*	.265*	.223*	-.048
M&R	.274*	.292*	.277*	.095	.033	.358*	.275*	.108
Composite	.239*	.317*	.353*	.103	.141*	.306*	.302*	.158*

Note: \* $p < .05$ , CT – “Counseling Theory,” Sim – “Similarities,” CP&C – “Counseling Processes and Content,” Process – “Processing,” CI – “Counseling Interventions,” Baggage – “Supervisee Baggage,” AD – “Adopting Dynamics,” Auto – “Autonomy,” M&R – “Models and Reflection,” Composite – Isomorphism Composite, Focus – “Client Focus,” Rap – “Rapport,” Ident – “Identification,” Cont – “Supervisor Control,” Conf – “Supervisory Conflict,” Att – “Attractive,” Sens – “Interpersonally Sensitive,” Task – “Task-oriented”

## Appendix E

Table 5

*Results of Stepwise Multiple Regression Analysis Predicting for SSI-Attractive*

---

	<i>B</i>	<i>S.E.</i>	$\beta$
Constant	2.91	.35	
Rapport	.53	.05	.53**
Isomorphism Composite	.18	.06	.16*
Conflict	-.17	.06	-.15*

---

Note:  $\Delta R^2 = .338$  for Step 1,  $p < .001$ ,  $\Delta R^2 = .016$  for Step 2,  $p = .009$ ,  $\Delta R^2 = .023$  for Step 3,  $p = .002$ , \*\*  $p < .001$ , \*  $p < .05$



## Appendix F

Table 6

*Results of Stepwise Multiple Regression Analysis Predicting for SSI-Interpersonally Sensitive*

	<i>B</i>	<i>S.E.</i>	$\beta$
Constant	2.94	.39	
Rapport	.37	.06	.36**
Client Focus	.14	.05	.16*
Conflict	-.20	.06	-.18*
Isomorphism Composite	.20	.06	.17*

Note:  $\Delta R^2 = .256$  for Step 1,  $p < .001$ ,  $\Delta R^2 = .024$  for Step 2,  $p = .003$ ,  $\Delta R^2 = .022$  for Step 3,  $p = .004$ ,  $\Delta R^2 = .026$  for Step 4,  $p = .001$ , \*\*  $p < .001$ , \*  $p < .05$

## Appendix G

Table 7

*Results of Stepwise Multiple Regression Analysis Predicting for SSI-Task Oriented*

---

	<i>B</i>	<i>S.E.</i>	$\beta$
Constant	1.51	.41	
Client Focus	.45	.07	.39**
Identification	.17	.07	.14*

---

Note:  $\Delta R^2 = .205$  for Step 1,  $p < .001$ ,  $\Delta R^2 = .015$  for Step 2,  $p = .023$ , \*\*  $p < .001$ , \*  $p < .05$

## Appendix H

Table 8

*Concurrent Validity Coefficients of the Isomorphism Scale Factors and Composite Score*

	Age	Experience
Counseling Theory	-.013	.019
Similarities	-.065	-.043
Counseling Processes and Content	-.042	-.034
Processing	-.019	.007
Counseling Interventions	-.153*	-.127*
Supervisee Baggage	-.052	-.097
Adopting Dynamics	-.072	-.028
Autonomy	-.109	-.004
Models and Reflection	-.067	-.044
Isomorphism Composite	-.078	-.045

Note: \*  $p < .05$

## Appendix I

Table 9

*Means and Standard Deviations of MANOVA Concurrent Validity Analyses*

	Males	Females	Master's	PhD
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Counseling Theory	3.46 (.83)	3.44 (.74)	3.40 (.75)	3.48 (.79)
Similarities	3.31 (.96)	3.22 (.84)	3.23 (.92)	3.27 (.88)
CP&C	3.84 (.63)	3.91 (.60)	3.87 (.64)	3.89 (.59)
Processing	4.03 (.68)	3.99 (.60)	3.96 (.72)	4.04 (.59)
Counseling Interventions	3.84 (.75)	3.84 (.71)	3.91 (.70)	3.82 (.73)
Supervisee Baggage	4.03 (.69)	4.00 (.65)	4.07 (.75)	3.99 (.61)
Adopting Dynamics	3.28 (.75)	3.24 (.77)	3.33 (.83)	3.23 (.73)
Autonomy	4.46 (.58)	4.48 (.65)	4.52 (.67)	4.44 (.60)
Models and Reflection	3.82 (.62)	3.86 (.58)	3.90 (.65)	3.82 (.57)
Isomorphism Composite	3.70 (.52)	3.69 (.47)	3.69 (.52)	3.70 (.48)

Note: \*  $p < .05$ , CP&C – “Counseling Processes and Content”

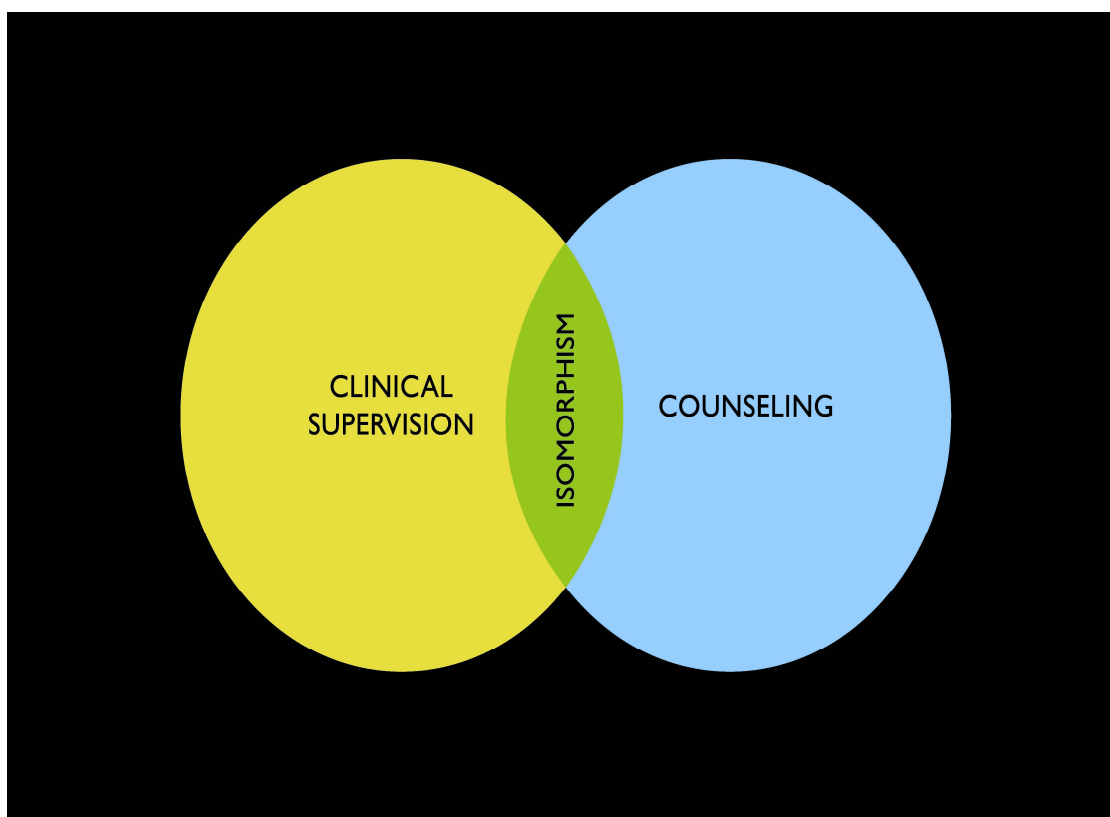
**Appendix J**

Figure 1. Isomorphism between Clinical Supervision and Counseling

**Appendix K**

Figure 2

*The Eight Steps of Creating a Survey Instrument*

Description	
Step 1	Identify the purpose and focus of the instrument (construct specification)
Step 2	Obtain feedback from stakeholders regarding the construct specification
Step 3	Identify research methodology and type of instrument
Step 4	Formulate instrument items
Step 5	Pretest instrument items with experts and participants
Step 6	Use pretest feedback and results to revise the instrument
Step 7	Conduct pilot test of instrument and run initial psychometrics
Step 8	Conduct validation test of instrument and run final psychometrics

Note: Colton and Covert (2007) and Lounsbury et al. (2005)

## **Appendix L**

### Construct Specification for Isomorphism

#### 1. Identify the Isomorphism Scale Outcomes

-The first outcome of the scale is to identify individual isomorphs that exist between clinical supervision and counseling.

-The second outcome of the scale is to operationalize the construct of isomorphism by Cronbach's alpha and an exploratory factor analysis to identify which isomorphs account for the most variance, load on subsequent factors with eigenvalues above 1.0, and have high inter-item correlations.

-Essentially, the desired end product of the scale is to identify individual isomorphs in order to operationalize the construct of isomorphism in clinical supervision and counseling.

## 2. Identify the Content Areas of Isomorphism

-The isomorph that appears in the literature often is the use of counseling-based theoretical orientations in clinical supervision.

Liddle (1988) describes isomorphism as the “overlay of overlays” where the integration of supervision and counseling occurs as a result of utilizing a salient theoretical orientation, similar attitudes towards change, and similar training environments.

Liddle et al. (1984) write, “Trainers do well to understand and intentionally utilize with their trainees the same basic principles of change employed in therapy. Setting goals, thinking in stages, contextual sensitivity, joining, and challenging realities are all operational aspects of both training and therapy” (p. 141).

Liddle and Schwartz (1983) believe that in order to facilitate skills building in supervision, supervisors must structure and facilitate supervision according to their counseling-based theoretical orientation and should teach supervisory skills using their counseling-based theoretical orientation.

Liddle and Saba (1983) believe that a salient theoretical orientation is one of the most important isomorphs.

Edwards and Chen (1999) believe that strengths-based theoretical orientation should be used in supervision.

Thomas (1994) writes about a solution-focused theory of supervision that is directly derived from solution-focused therapy models.

Lowe (2000) believes that using a salient theoretical orientation in supervision and counseling leads to better supervisor and supervisee functioning.



Gentry (1986) believed that supervisory success is a function of isomorphic theoretical orientations.

White and Russell (1997) believed that one of the core facets of isomorphism is the translation of therapeutic models and principles into supervision.

Friedlander et al. (1989) believed that “most conceptual models of supervision rely on extrapolations from counseling theory” (p. 149).

Frankel and Piercy (1990) used counseling-based cognitive behavioral techniques in supervision to give positive support and provide structure to supervisees.

-Next, there are a number of individual isomorphs that were found in the literature. First, we will look at ones that pertain to counselor education.

The training environments of counseling and clinical supervision are highly isomorphic and the carryover from counseling has drastic effects on supervision, especially with the supervisee adopting the dynamics exposed to in supervision (Liddle, 1988).

Liddle et al. (1984) write, “Trainers do well to understand and intentionally utilize with their trainees the same basic principles of change employed in therapy. Setting goals, thinking in stages, contextual sensitivity, joining, and challenging realities are all operational aspects of both training and therapy” (p. 141). Isomorphism is a catalyst for supervisee learning and growth.

Heath (1982) believed that altruism, instilling hope, universality, recapitulation of family systems, modeling, mutual respect, conflict resolution, developmental foci, and establishing rules are isomorphic between counseling and supervision.

Moorhouse and Carr (2001) believed that isomorphism can shift the focus of supervision from the client to the supervisory relationship if it is not handled and processed effectively.

Liddle (1982) believed that the process, content, techniques, skills, and goals of supervision are interdependent with counseling and should be taught in an isomorphic context and manner.

Botelho, Seaburn, & Harp (1991) believed that isomorphism plays a pinnacle role in the process of consultation in the training environment, especially in regards to family patterns being isomorphic.

Liddle and Saba (1985) used isomorphism as a basis for creating a structural-strategic training paradigm with the use of counseling theory, expanding upon strengths and competencies, challenging worldviews, relational patterns between supervisor and supervisee, the supervisory environment, boundaries, flexibility, setting goals, development, role playing, and organizing and structuring training and supervision.

Liddle (1986) used the interconnections between therapy and training to greatly affect the content and process of supervisory training environments. The thought that change occurs exactly the same way in both training and therapy. Growth and changing the trainee's perception of human behavior are also important.

Liddle (1991) found that isomorphism can be used in an interventional manner and that the goals, methods, and means of evaluation in therapy can be utilized as an aid to conceptualize and structure training.

Lee (1997) talked about the strong similarities between the supervisor-therapist relationships and the therapist-client relationship. Changes in one relationship will create changes in the other relationship.

Anderson, Rigazio-Digilio, & Kunkler (1995) believed that therapy models greatly affect the contents and methodologies of supervision and training modalities. They believed that supervisors should train their trainees in the method and model of therapy that they themselves practice and that doing this refines the philosophy behind the modalities and creates successful training and supervisory environments.

Weir (2009) found three different types of isomorphism including mimetic isomorphism where trainees use the theoretical orientation and philosophy of their supervisor, coercive

isomorphism where outside entities coerce trainers into training in certain manners to meet business needs, and normative isomorphism that pertains to the professionalization of supervision and therapy.

-Now, we move on to the isomorphic processes of supervision and counseling.

Roberts et al. (1999) believe that a lot of baggage is brought from both sides of the dyad and can foster isomorphism.

Lee (1999) believed that maturation and change are essential parts of the supervisory process much like in counseling.

Schneider (1992) believed that transference and countertransference are always present in supervisory dyads and must be dealt with to clarify boundaries and relationships in practice and in training.

Liddle and Saba (1983) believed that the most important isomorphs are setting goals, establishing roles, challenging maladaptive thinking styles, recapitulations, emphasis on relationships, dynamics, and boundaries, and the hierarchical structure.

Edwards and Chen (1999) believe that therapeutic interventions should be used in supervision to initiate supervisee growth, empower the supervisee, and focus on strengths, positives, and solutions.

Thomas (1994) believes that small successes in supervision should be reinforced and that the supervisee should be the expert.

Behan (2003) used isomorphism in narrative supervision in terms of interviewing supervisees about their personal lives and worldviews, families, reasons for entering the field, incorporating close, personal, and important relationships into counseling, and engage imaginations and personal strengths.

Boyd (2007) believed that isomorphism works best when thinking in a systemic fashion about supervision and therapy. The overlapping of therapist/client and

supervisor/therapist relationships systems comes from the basic want of helping people. Occurrences in on “echo” in the other and should be explored, especially in regards to family of origin dynamics.

Rothberg (1997) thought isomorphism should be used in an interventive manner in terms of setting goals, gaining insight, and using therapeutic models and theories to assist trainees and supervisees to grow and understand training better.

Sand-Pringle, Zarski, & Wendling (1995) and the seven themes of isomorphism that act as catalysts for supervisory processes and content to exist in supervisory dyads and promote growth are important.

Burnham (2010) believed that most models of therapy transfer ideas, values, practices, and skills into supervision. It is more successful, convenient, efficient, and gives much needed practical experience.

-Now, we move to the effects of isomorphism on the content of supervision.

Isomorphism occurs on an unconscious level, people bring baggage into the dyad, and there should be an emphasis growth, reflection, maturation, learning, relationships, goal setting, and empathy (Williams, 1997). Also, the dyad should identify, process, and utilize isomorphic nature of supervision and therapy, reflecting upon affective and emotional occurrences, exploring similar dynamics between supervision and therapy, identify roles in fostering isomorphism, and model processing of isomorphic issues (Williams).

Getz and Protinsky (1994) believe that understanding isomorphic occurrences in supervision as a result of family of origin dynamics is important.

Gentry (1986) thought that counseling-based theoretical orientations affects the view of reality, positive therapeutic change, relationships, and process and content of supervision and therapy, and also feedback, reinforcement, goals, case conceptualization, and philosophy.

White and Russell (1997) found that the setting of supervision is highly isomorphic to the setting of counseling.

Keller and Protinsky (1986) believed in an integrative approach to supervision due to a lack of boundaries and theoretical structure. The lack of clarity can be addressed by using isomorphism models of therapy and training in supervision.

Deveaux and Lubell (1994) used a family of origin approach to training future supervisors and believed that examining the family helps with differentiation and helps to better perceive isomorphic patterns across training, supervision, and therapy.

Agazarian (1999) thought that all phases of development in the therapeutic system are isomorphic and helps trainees and supervisees gain insight into their own frame of reference.



## 3. Table of Specifications

Content Area	Content %
Counseling Theoretical Orientations	19.6% (11 items)
Counselor Education and Training	35.7% (20 items)
Supervisory Process	28.6% (16 items)
Supervisory Content	16.1% (9 items)

### Appendix M

Indicate the level with which you are in agreement or disagreement with the statements presented in each of the following items in regards to your work with your supervisee(s). For each item, enter a number of the following scale from 1 to 5 in the blank space next to item which best reflects your agreement or disagreement:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Disagree nor Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>

1. I place an emphasis on relationships in the supervisory dyad.
2. I believe that using my counseling theoretical orientation in supervision leads to better supervisee functioning.
3. I believe there is a hierarchical structure in supervisory dyads.
4. I believe the basic principles of change employed in therapy are similar to the basic principles of change used in supervision.
5. I believe it is highly important to use my counseling theoretical orientation in supervision.
6. I have used cognitive-behavioral techniques (homework, providing feedback, questioning thoughts or assumptions, trying new skills or interventions) in supervision before.
7. I have processed the similarities of supervision and counseling in my supervisory practice.
8. I empathize with my supervisees in my supervisory practice.
9. I like to promote altruism in the supervisory dyad.
10. I think reinforcement of supervisee success is an important part of supervision.

11. I set goals for supervisees when training them in supervision.
12. I process the roles of supervisor and supervisee in my supervisory practice.
13. I have used solution-focused counseling theory in supervision before.
14. I place an emphasis on supervisee growth in my supervisory practice.
15. I have challenged my supervisees' thinking styles when training them in supervision.
16. I model professional behaviors (legal, ethical, and multicultural competencies, professional discourse with other professionals, advocacy for the profession, using evidence-based interventions) in supervision for my supervisees.
17. I find that the setting where a supervision session takes place is similar to the setting of a counseling session.
18. I like to think in stages when training supervisees in supervision.
19. There have been times in my supervisory practice where the focus has been on the supervisory relationship between me and the supervisee(s) rather than the client.
20. I believe promoting the autonomy of supervisees is an important part of supervision.
21. I think supervisee maturation is an essential aspect of the supervisory process.
22. I have encountered supervisee resistance towards change in supervision.
23. I place an emphasis on supervisory dynamics in the supervisory dyad.
24. I believe the goals of supervision and counseling are similar.
25. I urge supervisees to reflect on their practice in supervision.
26. I have had to process countertransference issues with supervisees in my supervisory practice.
27. I clarify boundaries in supervision.

28. I provide feedback to my supervisee in supervision.
29. There have been instances in my supervisory practice where the recapitulation of supervisees' family dynamics has been processed in supervision.
30. I facilitate supervision using my counseling theoretical orientation.
31. I teach skills in supervision using my counseling theoretical orientation.
32. I have found that supervisees bring emotional baggage into the supervisory relationship.
33. I like to focus on the positives of my supervisees in supervision.
34. I have found that the content of supervision is similar to the content of counseling.
35. I think that most models of supervision come directly from counseling theory.
36. I think that the success of supervision hinges on the use of my counseling theoretical orientation.
37. I have used counseling interventions to initiate supervisee growth in supervision.
38. I believe that supervisees adopt the dynamics they are exposed to in supervision.
39. I believe there should be mutual respect between the supervisor and supervisee.
40. I like to focus on the supervisee's developmental level when training in supervision.
41. I have found that the process of supervision is similar to the process of counseling.
42. I strive to build a strong working alliance with my supervisee in supervision.
43. I have found that supervisees bring personal affective issues (feelings and emotions) unrelated to their counseling practice into the supervisory relationship.
44. I have used counseling interventions to empower supervisees in supervision.
45. I like to focus on the supervisee's strengths in supervision.

46. I instill hope into my supervisees in supervision.
47. I have had to process transference issues with supervisees in my supervisory practice.
48. I have used similar techniques in supervision and counseling.
49. I believe the same set of skills are needed in both supervision and counseling.
50. I believe that the processing the supervisee's family of origin dynamics is an important part of supervision.
51. I establish rules in supervision.
52. I have found that supervisees bring personal cognitive issues (thoughts, memories, perceptions) unrelated to their counseling practice into the supervisory relationship.
53. It is important to carry over counseling theory and principles into supervision.
54. I structure supervision using my counseling theoretical orientation.
55. I teach supervisees counseling theories that insurance companies will likely reimburse for in professional practice.
56. I use the views of my professional and accrediting organizations regarding therapy, ethics, and professional identity to train supervisees in supervision.

### Appendix N

Indicate the level with which you are in agreement or disagreement with the statements presented in each of the following items in regards to your work with your supervisee(s). For each item, enter a number of the following scale from 1 to 5 into the blank space next to item which best reflects your agreement or disagreement:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Disagree nor Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>

1. I believe that using my counseling theoretical orientation in supervision leads to better supervisee functioning.
2. I believe the basic principles of change employed in therapy are similar to the basic principles of change used in supervision.
3. I believe it is highly important to use my counseling theoretical orientation in supervision.
4. I have processed the similarities of supervision and counseling with supervisees in my supervisory practice.
5. I process the roles of supervisor and supervisee in my supervisory practice.
6. I have challenged my supervisees' thinking styles when training them in supervision.
7. I believe promoting the autonomy of supervisees is an important part of supervision.
8. I place an emphasis on supervisory dynamics in the supervisory dyad.
9. I believe the goals of supervision and counseling are similar.
10. I urge supervisees to reflect on their practice in supervision.
11. I have had to process countertransference issues with supervisees in my supervisory practice.
12. I clarify boundaries in supervision.

13. There have been instances in my supervisory practice where the recapitulation of supervisees' family dynamics has been processed in supervision.
14. I facilitate supervision using my counseling theoretical orientation.
15. I teach skills in supervision using my counseling theoretical orientation.
16. I have found that the content of supervision is similar to the content of counseling.
17. I think that most models of supervision come directly from counseling theory.
18. I think that the success of supervision hinges on the use of my counseling theoretical orientation.
19. I have used counseling interventions to initiate supervisee growth in supervision.
20. I believe that supervisees adopt the dynamics they are exposed to in supervision.
21. I have found that the process of supervision is similar to the process of counseling.
22. I have found that supervisees bring personal affective issues (feelings and emotions) unrelated to their counseling practice into the supervisory relationship.
23. I have used counseling interventions to empower supervisees in supervision.
24. I have had to process transference issues with supervisees in my supervisory practice.
25. I have used similar techniques in supervision and counseling.
26. I believe the same set of skills are needed in both supervision and counseling.
27. I believe that the processing the supervisee's family of origin dynamics is an important part of supervision.
28. I have found that supervisees bring personal cognitive issues (thoughts, memories, perceptions) unrelated to their counseling practice into the supervisory relationship.
29. It is important to carry over counseling theory and principles into supervision.

30. I structure supervision using my counseling theoretical orientation.



## Appendix O

### SWAI-Supervisor

Indicate the frequency with which the behavior described in each of the following items seems characteristic of your work with your supervisee. After each item, check the space over the number corresponding to the appropriate point on the following 7-point scale:

1	2	3	4	5	6	7
Almost Never						Almost Always

1. I help my trainee work within a specific treatment plan with his/her client.
2. I help my trainee stay on track during our meetings.
3. My style is to carefully and systematically consider the material that my trainee brings to supervision.
4. My trainee works with me on specific goals in the supervisory session.
5. In supervision, I expect my trainee to think about or reflect on my comments to him or her.
6. I teach my trainee through direct suggestion.
7. In supervision, I place a high priority on our understanding the client's perspective.
8. I encourage my trainee to take time to understand what the client is saying and doing.
9. When correcting my trainee's errors with a client, I offer alternative ways of intervening.
10. I encourage my trainee to formulate his/her own interventions with his/her clients.
11. I encourage my trainee to talk about the work in ways that are comfortable to him/her.

12. I welcome my trainee's explanations about his/her client's behavior.
13. During supervision, my trainee talks more than I do.
14. I make an effort to understand my trainee.
15. I am tactful when commenting about my supervisee's performance.
16. I facilitate my trainee's talking in our sessions.
17. In supervision, my trainee is more curious than anxious when discussing his/her difficulties with me.
18. My trainee appears to be comfortable working with me.
19. My trainee understands client behavior and treatment technique similar to the way I do.
20. During supervision, my trainee seems able to stand back and reflect on what I am saying to him/her.
21. I stay in tune with my trainee during supervision.
22. My trainee identifies with me in the way he/she thinks and talks about his/her clients.
23. My trainee consistently implements suggestions made in supervision.

## Appendix P

### SIQ-Supervisor

Please indicate the frequency with which the interaction described in each of the following items seems characteristic of your work with your supervisees. For each item, enter a number of the scale from 1 to 7, which best reflects your view of how frequently these interactions occur.

1	2	3	4	5	6	7
Almost Never						Almost Always

1. It is up to me to decide when my supervisee and I finish discussing a particular topic.
2. I follow my supervisee's lead when he or she initiates topics during supervisory sessions.
3. It is my job to initiate discussions on topics in supervision.
4. I determine when my supervisee and I need to shift the focus of our discussions.
5. My supervisee and I compete for control over what is discussed in supervision.
6. My supervisee follows my lead when I make a move to end a supervision session.
7. I follow my supervisee's lead when he or she changes the topic of discussion in supervision.
8. I decide when our supervision sessions should end.
9. I can't get my supervisee to discuss what I want to discuss.
10. My supervisee decides when we finish discussing topics in supervision.
11. It is up to me to determine what is discussed in supervision.

12. I control what happens in our supervision sessions.
13. My supervisee and I conflict with one another.
14. I decide on what topics are discussed in supervision.
15. My supervisee and I do not follow one another's leads when discussing issues in supervision.
16. My supervisee tries to regain control of our discussion if I am in control.
17. My supervisee follows my lead if I decide to change the topic.
18. I feel like my supervisee and I compete with one another.

## Appendix Q

### SSI-Supervisor

Indicate your perceptions of your style of psychotherapy/counseling on each of the following descriptors. Enter the number on the scale, from 1 to 7, that best reflects your view of yourself.

1	2	3	4	5	6	7
Not very						Very

1. goal-oriented
2. perceptive
3. concrete
4. explicit
5. committed
6. affirming
7. practical
8. sensitive
9. collaborative
10. intuitive
11. reflective
12. responsive
13. structured
14. evaluative
15. friendly

16. flexible
17. prescriptive
18. didactic
19. thorough
20. focused
21. creative
22. supportive
23. open
24. realistic
25. resourceful
26. invested
27. facilitative
28. therapeutic
29. positive
30. trusting
31. informative
32. humorous
33. warm

### **Vita**

Eric Heidel, MS NCC, is a fifth year doctoral student in Counselor Education at the University of Tennessee, Knoxville. Eric has specialized in statistics, research design, and psychometrics during his tenure as a graduate student and earned the Intercollegiate Graduate Minor in Statistics and the Graduate Certification in Evaluation, Statistics, and Measurement. He was given a graduate assistantship at the University of Tennessee Graduate School of Medicine and has worked there for four years as a statistical and research design consultant. He has consulted on hundreds of projects and has numerous publications in peer-reviewed journals in both medicine and counseling and has presented at many national conferences. He was also given the Yates Dissertation Fellowship, a \$15,000 non-service award, to write his dissertation from the University of Tennessee.